the American Perfumer
and ESSENTIAL OIL REVIEW

COSMETICS · SOAPS · FLAVORS

EST. 1906

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CONTENTS · SEPTEMBER 1945

Cosmetics and the Skin
Louis Schwartz 41

A Survey of Spanish Essential Oils
Dr. Ernest Guenther 43

Cosmetic Trends in the Middle West
Jean Mowat 45

Synthesis of Substituted Indoles
Léo Marion and Walter R. Ashford 47

Short Adages
R. O'Mattick 50

Technical Abstracts from Scientific Literature 51

Packaging Portfolio 52

Quaternary Ammonium Surface Active Agents
H. W. Zussman 54

Solvents for the Flavor Industry
Dr. Morris B. Jacobs 56

Survey of Recent Cosmetic Patents
Dr. I. J. Fellner 61

REGULAR FEATURES

Desiderata—*Maison G. deNavarre* 37
Questions and Answers 39
Washington Panorama 63
New Products and Processes 71
Among Our Friends 73
News and Events 78
Market Report 97
Prices in the New York Market 99

THE CHEMICAL NATURE OF THE VIOLET ODOR
Dr. Everett Saul 109

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Editorial Comment

Restrictions Revoked

So many Governmental regulations and restrictions have been revoked since the last issue of THE AMERICAN PERFUMER appeared that to merely list them would more than fill this column. Consequently, no mention of Federal Orders appears in the news section of this issue. We will await the stabilization of the situation to report to you what controls remain.

Marketing Cosmetics Through Food Outlets

Paul Sayres, New York food broker, challenged drug, cosmetic and grocery manufacturers to take fuller advantage of the half-million food outlets as a means of increasing distribution, lowering unit costs, and serving the customer, in an article which appeared recently in *Sales Management.*

Mr. Sayres pointed out that retail food outlets offer drug and cosmetic manufacturers an additional mass marketing area, with a high concentration of steady and prime shoppers.

Estimates range up to 150,000,000 people per week shopping in food stores in this country. A survey indicates that these stores are shopped over three and one-half times as often as drug stores; six and one-half times as often as department stores; and over seven and one-half times as often as candy stores.

An interesting aspect of Mr. Sayres' article is his point of view in stating that there is an opportunity for a few food manufacturers whose well advertised brands have instant consumer recognition to place their nationally known names on a *new line of drugs and cosmetics and go to town.*

Super Market Merchandising estimates a potential annual drug item volume of $120,000,000 in super markets. Mr. Sayres estimates at least $180,000,000 additional available in the balance of the grocery field, or a a total of $300,000,000.

That a market as big as this in drugs must reflect a lucrative field for cosmetics goes without saying, and gives manufacturers in this field pause for thought.

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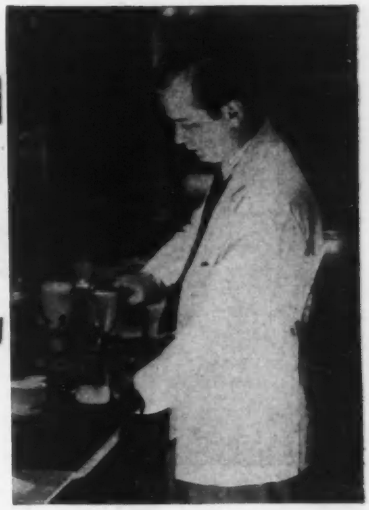
Desiderata

by MAISON G. DeNAVARRE



M. G. DeNavarre at work in his laboratory

NEW ANTISEPTIC

Now that the patent on making hexyl resorcinol has expired, the material can be bought on the open market. It is fat and water soluble in the concentrations required. Thus for shaving lotions, baby oils and numerous antiseptic creams it takes from 0.1 to 0.2 per cent to be effective. Certain use patents are still in existence, however, and this point will have to be checked before using this new compound. It is supposed to be less irritating than most phenolic substances, but, of course, has the incompatibilities of phenols.

REMOVED RESTRICTIONS

As this is being written, the lanolin order has been revoked; wetting agents as a whole will be removed from restrictions; alkalis will ease up. But most animal and vegetable fats will continue to be tight for some time yet.

With restrictions removed, there will be a scramble for the little material available so that for a short spell, supplies may be just as hard (or harder) to get as during the restricted period. So, before giving up any substitutes, examine your status well. Check, too, to see if the substitute worked as well as the material which it replaced. It may be that you will want to stay with the substituted material. Be as careful to drop these substitutes as you were to adopt them.

HAIR RINSE

It has been almost an impossibility to keep the powdered hair rinses, based on tartaric acid and dyes, from absorbing moisture from the air and staining the envelopes in which they are packaged. First, tartaric acid was scarce and some people went to citric acid, which is more difficult to handle. The answer is to make a liquid rinse utilizing some of the liquid acids or solutions of crystalline acids. The solution could be made up so that it could be measured, say, in the cap of the bottle, one cap tinting, say, one pint of liquid for rinsing. Liquids are made more cheaply than powders which have to be packaged in small envelopes—the labor involved is terrific. By making a liquid, you have no more returns of soiled material and no fear of summer humidity. It is a cinch.

ABOUT BOOKS

I have often been asked about the number of books a good technician should have in his laboratory library. The question is too broad for a general statement. But a fund should be set aside to allow the purchase of *at least* $100 worth of books a year. Some years you will go over the budget a bit. This is aside from trade and scientific journals. It will let you buy about one—and occasionally two—books a month. That is a good average. No laboratory should be without about a dozen or so *essential* books which should be augmented according to the needs. A *good* and useful *cosmetic* library should have around a thousand volumes in it, excluding bound journals. Rare books, especially those formerly published in Europe, can be bought on microfilm for about the same price as the original book. With the aid of a microfilm reader, you can have at your hand all the rare literature of the world.

In tracing down the causes of caking in finger waving fluid concentrates made with karaya gum, borax and alcohol, it is interesting to note the change in alcohol strength in the mixture on standing. Moisture is actually extracted from borax to a substantial extent. Likewise water occluded by the gum reduces the alcoholic strength. Those are just a couple of variables in the problem. Others are being traced down. Naturally gum fineness and quality play an important role too.

INSECTICIDAL FLOOR WAX

I don't know how satisfactorily one could incorporate DDT into say a liquid floor wax. But such a product if placed on ground floors of factories would tend to keep out a lot of insects that crawl in during the course of a day. DDT is reputed to volatilize at the average rate of about 0.11 mg per day. So, a decent application would last a while.

NEW WETTING AGENT

One of the suppliers has just sent out a sample of a thick, paste-like wetting agent, supposedly equal to, or superior to, one of the best known ones on the market. A quick check shows it has some possibilities, but you may envisage others after seeing the material.

APPLE SYRUP

One of the Regional Laboratories of the Department of Agriculture has spent considerable time in developing a process for distilling off the true

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apple flavor from the juice of apples. The flavor can be made up in either 10-fold or 100-fold strength, and the process is supposed to be a comparatively easy one. The sample of distillate that I have seen, 100-fold, looks very good. To my knowledge, the only commercial producer of such apple flavor is a Canadian company, but there is no reason why it cannot be done here. Added to jellies, for example, the material produces a very natural character. It should have many applications.

CATIONIC SHAMPOO

The new cationic or invert soaps have strong bactericidal properties. The subject is gone into in further detail in a separate feature article appearing in THE AMERICAN PERFUMER, page 54. Meanwhile, a shampoo containing 17 per cent of active ingredient has been tried and found quite interesting. It doesn't lather quite as much as a shampoo made from anionic wetting agent, but it leaves the hair with a nice, soft feel, besides sterilizing the scalp, insofar as man can effect sterilizing of skin surface. Such a shampoo looks like it would have many potentialities, particularly in the field of shampoo used for irritated psoriatic and injured scalp. Where there is a fear of contamination of the scalp by infectious germs, such a shampoo would have no equal.

PROPYLENE GLYCOL LAURATE

I have just seen a sample of propylene glycol laurate that is water white in color. This is the purest sample I have seen to date and some who have not experimented with propylene glycol laurate because of its color can now do so and know that this highly refined product is a commercial entity.

EMULSIONS

Some years ago I mentioned that the use of polyalcohols of certain types tended to give emulsions of smaller particle size than when the polyols were not used. Some people could not duplicate the findings. Within the past month, part of a series of tests using polyalcohols in the water phase, got under way. It is too early to make broad conclusions. But some polyalcohols gave fine stable emulsions, while others actually acted as if they were *de-emulsifiers*. There is no question but that the number and position of hydroxyl groups affects emulsions in different ways. The thing we are all interested in, is to find the right combination for a given emulsion . . . and that already is known to be difficult.

QUESTIONS AND ANSWERS

563. FORMULAS FOR SHAMPOO

Q: *We are interested in procuring a product that will mothproof garments. Will appreciate any suggestions you may give us. Has magnesium fluosilicate any value in such a product? Will also appreciate a formula you may suggest for a shampoo. We have the book "Chemistry & Manufacture of Cosmetics" that gives formulas.*

T. S.—NEW YORK

A: Mothproofing is out of our line although we know the compound mentioned has been used. Sorry. Regarding the shampoo, we suggest that you try formulas No. 235, No. 236 or No. 239 in "The Chemistry and Manufacture of Cosmetics" which you have.

564. ANTIPERSPIRANT CREAM

Q: *Would you mind furnishing us the name of the producer of the new greaseless base and the maker of the new buffer for antiperspirant cream?*

S. C. J.—PENNSYLVANIA

A: The names of the two suppliers are going to you under separate cover. However, the buffer, to our knowledge, is not available at this time.

565. BUBBLE BATH FORMULA

Q: *Can you give me a simple formula for bubble bath?*

J. F.—ILLINOIS

A: Since you do not indicate whether you want a dry or liquid product, we suggest that you try any of the available wetting agents described in the Wetting Agents Bulletin, especially the sodium alkyl aryl sulfonates. The names of several suppliers of these go to you under separate cover.

566. POWDER RINSES

Q: *Will you kindly send us a formula on powder rinses in crystalline form and the simplest way to make them? We also wish to be advised whether or not there would be a chemical reaction or discoloring of a hair color preparation containing lead acetate and sulfur when manufactured in a stainless steel tank.*

S. R.—Tennessee

A: The hair rinse may be made along the following lines: Tartaric acid and citric acid equal parts 99 per cent, certified acid color 1 per cent. Mix the color dry and if preferred, you may spray with a little alcohol to stain the crystals. Package in a water proof envelope. It is doubtful if any discoloration by lead acetate and sulfur will occur in a stainless steel tank, providing you are using a suitable variety such as the 18-8 type and if your tank is clean. Reasonable purity of your chemicals is likewise imperative.

567. ETHYL ALCOHOL CONTENT

Q: *Will you please tell me if there is a simple method for determining the ethyl alcohol content of a French perfume?*

L. L. G.—CONNECTICUT

A: If you have been following "Production Control and Analysis of Cosmetics" appearing in the back of THE AMERICAN PERFUMER you will find that in the December, 1944, issue, page 111, method No. C-18, describes a quick and easy method of determining the alcohol. You simply mix a fixed volume of your perfume with a fixed volume of reagent, shake and make a reading. It will take less than a minute.

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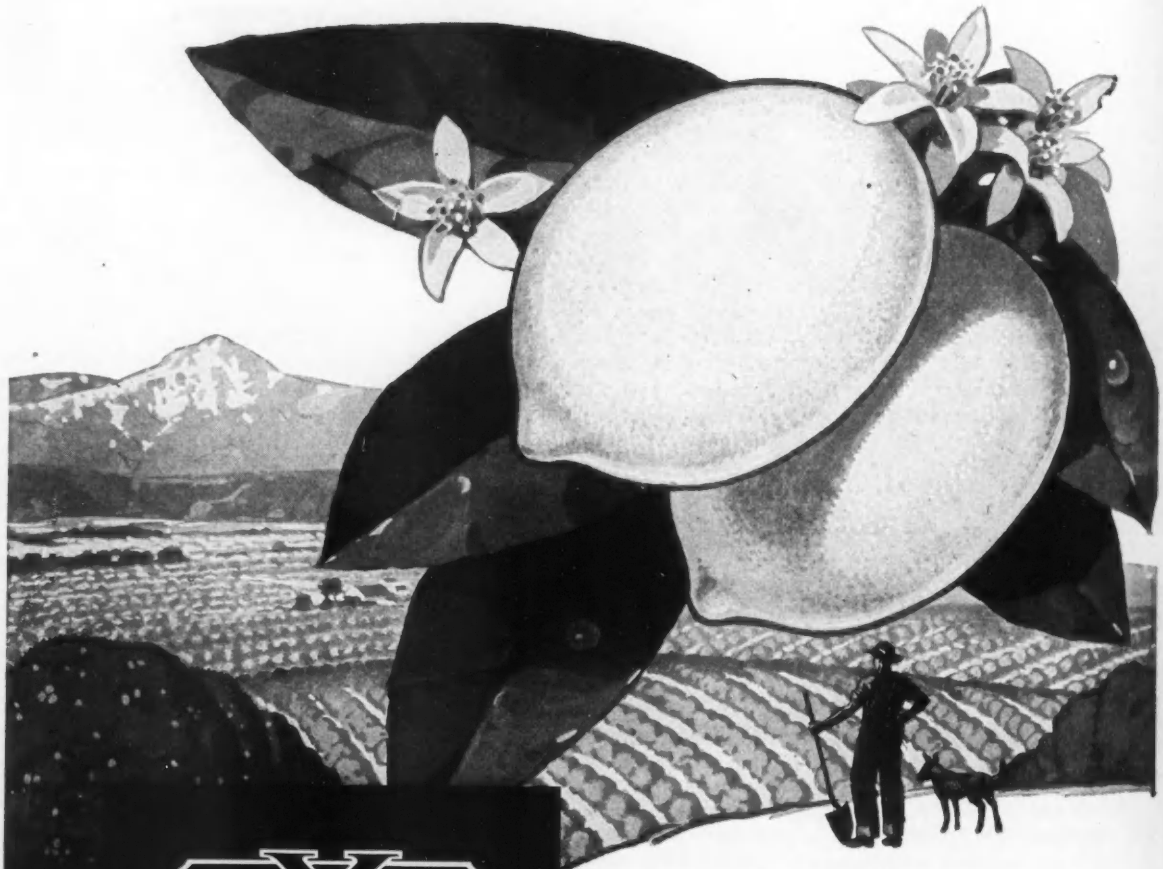

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Cosmetics and the Skin

*Cosmetics influence the health and functioning of the skin . . . The history of cosmetics through the Ages**

by LOUIS SCHWARTZ
Medical Director, U. S. Public Health Service

THE object of this series of articles is twofold: First, to give an insight into the manufacture of cosmetics, and the nature of the chemicals which go into them; second, to point out to the manufacturers of cosmetics the hazards to the skin from irritant and sensitizing chemicals which they may unwittingly put into cosmetics, and show them what precautions they should take in order to be certain that their new products will be safe to use without causing skin irritation except perhaps in the case of a very small percentage of unusually allergic individuals.

INFLUENCE ON SKIN FUNCTIONS

Cosmetics are used universally and they have a marked influence on the health and functioning of the skin. Yet few of us know anything about the composition of the various cosmetics. While the skin is the largest and most external organ of the body, there has been but little study of the effects of chemicals and cosmetics upon its structure and function. Physicians formerly decried the use of cosmetics, but their reasons for doing so apparently were based more on moral ground than on any physical damage which they could attribute to their use. Even today some physicians who are unacquainted with the modern processes of manufacturing cosmetics appear to give but reluctant approval to their use.

Some cosmetic manufacturers know but little about the anatomy and physiology of the skin, or of the effect of their cosmetics upon it. Therefore, they may unknowingly make claims for their cosmetics which are inconsistent with scientific knowledge. It is the hope of the author that this series of articles as well as the book on a similar subject soon to be published,† will make the subject of cosmetics, their proper manufacture and use, clearer to the manufacturers, the public, and the medical profession.

HISTORY OF COSMETICS

Among the lower animals nature has adorned the male of the species with bright-colored hair, feathers, or skin, and in some instances with a strong sexual scent in order to attract the female. In the human species, however, it is the woman who from time immemorial has adorned her skin and person and used pleasing scents in order to attain her natural purpose, the attention and desire of the man.

COSMETICS IN EGYPT

The papyri found in the ancient tombs of Egypt contain the earliest authentic records of the use of cosmetics. In the much publicized tomb of Tutankhamen there was found an alabaster unguent vase containing a scented cosmetic ointment. The ancient Egyptians were great users of cosmetics . . . the general population was much interested in cosmetics which were used even in preparing mummies. Cosmetic ointments were made from animal fats, natural odorous resins and balsams while the fat of cats and the hoofs of cattle were used as ointment bases.

The more affluent ancient Egyptians used many types of cosmetics and it is likely that cosmetics played no small part in the charm and beauty of Cleopatra. Eye paints were applied by means of a special rod or with the fingers, around the eyes and the eyebrows. The skin under the eyes was painted green, the eyelids brown, the eyebrows and lashes black. The pigments used in the paste were green copper ore, lead ore, carbon black, black magnesium oxide. The face was rouged with paints containing pigments of red iron oxide and cinnabar. Lips were rouged with salves containing these same red pigments. Fragrant lubricating ointments were used on the body, consisting of animal fats and vegetable oils perfumed with frankincense, myrrh, olibanum, cinnamon, and

* From Dermatoses Section, Industrial Hygiene Division, Bureau of State Services.

† Dermatitis and Cosmetics: Schwartz, L., and Peck, S. M. Publisher: Paul Hoeber.

many other pleasing natural odors.

The Bible contains many references to cosmetics. The recipe for the "holy anointing oil," traffic in "balm, myrrh and spicery" are mentioned. One can detect a note of disapproval when the Bible says of Jezebel that she painted her face and eyes and "tired" her head.

The ancient Babylonians used red and white face paints and used "kohl" (carbon black) to paint the skin and hair around the eyes.

USE OF COSMETICS IN GREECE

The ancient Greeks, female and male, used perfumes and called them the "scents of the Gods." Dyeing the hair and the use of rouge on the cheeks and lips was the custom of the women.

The so-called wise men of ancient Greece were prejudiced against the use of cosmetics. Both Socrates and Aristotle decried the excessive use of perfumes. Aristotle erroneously thought that the spices and perfumes used in hair ointments caused premature graying of the hair. There is also an account in Xenophon of a man who urged his wife to restore the glow in her cheeks with exercise instead of with rouge.

ROMAN USE OF COSMETICS

The Romans were great users of cosmetics and had a full line of them. Perfumes made of frankincense, myrrh, rose leaves, narcissus, and many other flowers were distributed to the guests at banquets and entertainments.

They had creams to soften skin, remove wrinkles, and heal or cover blemishes. Such creams had bases of goose, swan, hen, and wool fat, and contained such medicaments as niter, white lead, meerschaum, bone meal, barley pap, and perfumes. They darkened the eyebrows with antimony sulfide. They bleached and dyed the hair. They used face rouges and powders containing chalk, red lead, and cinnabar. They had dentifrices and even false teeth and false hair. Some of their stern critics ridiculed the excessive use of cosmetics by the decadent Romans. Martial wrote of them, "Hair you bought and teeth and rouge and wax. The face you show the world by day is laid at night in a hundred rouge pots."

The Carthaginians used both the Roman and Egyptian types of cosmetics and since they were great traders, it is likely that the cosmetics were carried by them to many far-off places.

UNIVERSAL USE BY 16TH CENTURY

There are no records of the use of cosmetics during the period between the fall of the Roman Empire and the Renaissance, the so-called Dark Ages. In the early period of the Renaissance, Italy was the cosmetic center of Europe. From there the use of cosmetics spread to France and later to England. By the 16th Century the use of cosmetics was universal over Europe, both among men and women. Face and body creams, perfumes, rouges, bleaches, and powders were used by the aristocracy and by others who could afford them. In France and Spain there was no prejudice against their use, but in puritanical England there was a revulsion of feeling against the use of cosmetics so that bills were introduced into Parliament "to prohibit women from beguiling men into matrimony by the use of scents, paints, cosmetics, washes, false hair, false teeth, Spanish wool, iron stays, hoops, high-heeled shoes, and bolstered hips; and making such marriages null and void; and the penalty the same as for witchcraft."

In China and Japan where women have used cosmetics from the earliest times, there was never any stigma attached to the custom.

Cosmetics are now used by women of all civilized countries. The old and the young use them to improve the appearance of the skin and to conform to certain styles such as wavy hair, plucked eyebrows, rouged cheeks, and lips, and lacquered nails. If face powders, face lotions, and hair tonics are classed as cosmetics, then it can be said that most men in civilized countries now use cosmetics.

INGREDIENTS REGULATED BY LAW

Today most large manufacturers of cosmetics are well versed in the manufacture of safe products and the use in cosmetics of potentially harmful ingredients is so regulated by law that, in the opinion of the writer, the majority of present day cosmetics are harmless to the large majority of users. Good cosmetics as a whole are an aid in the care and protection of the skin.

While the advertising of certain cosmetics is so cleverly worded as to imply that the cosmetic will effect some miraculous improvement in the skin, the manufacturer when brought to task by the law often defends the advertisement by declaring that it really makes no such definite claims.

The Federal laws and enforcement agencies protect the public from flagrant misstatements in advertising cosmetics, and are empowered to prevent interstate traffic in cosmetics containing harmful ingredients.

The next article in this series will be on "Skin Hazards in the Manufacture of Cosmetics and Among Beauticians."

This is the first of three articles by Dr. Louis Schwartz. The next will appear in the November issue.

Cosmetics Decontrolled

It is officially announced that cosmetics and toilet articles are released in Palestine. The articles which have been in charge of the Controller of Light Industries for nearly two and a half years, include lipsticks, powder and rouge, vanishing and cold creams, eau-de-cologne, alum, sun-tan oil, soapless shampoos, solid and liquid brilliantine and hair fixatives, hair dyes and depilatories.

During the period of control, cosmetics had to conform to certain standards, and de-control means de-standardization as well.

Various types of animal hair used in the manufacture of brushes have also been decontrolled.

Toilet and Sanitary

Pomade for Removing Wrinkles. Take two ounces of the juice of onions, the same quantity of the white lily, the same of honey, and one ounce of white wax, put the whole in a new earthen pipkin till the wax is melted; take the pipkin off the fire, and in order to mix the whole together keep stirring with a wooden spatula till it grows quite cold. You will have an excellent ointment for removing wrinkles. It must be applied at night, before going to bed, and not wiped off till morning.

To Cleanse Long Hair.—Beat up the yolk of an egg with a pint of soft water. Apply it warm, and afterward wash it out with warm water.

Peterson's Magazine, circa 1876.

A Survey of Spanish Essential Oils

The bulk of thyme oil originates in the Spanish producing regions located in Murcia and Almeria . . . The properties and composition of the thymol type oil

by DR. ERNEST GUENTHER

Chief Chemist, Fritzsche Brothers, Inc., New York, N. Y.

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THE botany of the plants from which thyme oils are distilled is somewhat confused, since in Spain alone, the main producing country of this oil, there exist numerous species and varieties of wild growing Thymus, some of them bearing vernacular names. The same is true of Morocco and other countries bordering the Mediterranean.

In commerce, the designation thyme oil is occasionally applied indiscriminately and erroneously to oils distilled from plants belonging to species other than *Thymus vulgaris* L. or *T. zygis* L.

Some years ago, the author[1] suggested that for practical purposes thyme oils be classified according to their chemical composition as follows:

I. Thyme Oil—Thymol Type

The oil contains 42 to 60 per cent of phenols which consist mainly of thymol (crystallizable phenol).

II. Origanum Oil—Carvacrol Type

This oil contains 63 to 74 per cent of phenols which consist mainly of carvacrol (noncrystallizable phenol).

III. Lemon Thyme Oils

These oils contain a certain amount of citral which accounts for their somewhat lemon-like odor. Commercially, this group has remained unimportant.

Thyme Oil—Thymol Type

BOTANY

The oil is distilled from the flowering herb of *Thymus vulgaris* L. and *T. zygis* L., according to Blaque[2] also from *T. zygis* var. *gracilis*.

APPEARANCE OF PLANTS

T. vulgaris is a sub-shrub attaining a height of about six inches to one foot, procumbent at the base. The greyish-green leaves of *T. vulgaris* are sessile, ovate-linear, borne on brown branches, the small flowers of purple color. Examining dried samples of *T. vulgaris* and *T. zygis*, Holmes[3] found that the two species have leaves very much alike, except that the floral leaves or bracts in *T. zygis* are larger than the ordinary leaves, the flowers whitish and rather longer. The whorls of flowers form an interrupted spike, not small axillary and terminal heads as in *T. vulgaris*. The latter flowers in spring, *T. zygis* in summer. This fact, in the author's opinion, permits the conclusion that in Spain *T. zygis* mainly is used for distilling purposes. (See also Collection of Plant Material.) In fact, the Department of Botany at the University of Sevilla[4] recently determined the plants used for the distillation of thyme oil in the Almeria region as *Thymus zygis* L. This species grows in the south of Spain, while *T. vulgaris* L. flourishes in the center and east of Spain, and in the highlands of Andalusia. The Spanish vernacular name of *T. vulgaris* is *tomillo comun o salsero*, while *T. zygis* is known as *tomillo salsero o accitunero*.

Leaves, flowers and other herbaceous parts contain an essential oil of pungent, aromatic odor and flavor, for which reason dried thyme is widely employed as condiment for seasoning food products.

ORIGIN, HABITAT AND RANGE

Thyme, a native of Mediterranean countries, grows profusely over wide areas on arid mountain slopes in the south of France, in the southeastern provinces of Spain, in Algeria and in Morocco. For culinary purposes *Thymus vulgaris* is grown in gardens of Europe and the United States, but for distillation only the wild plant is employed. Originally thyme oil was distilled in France (Alpes-Maritimes), but for the last thirty years the lower-priced Spanish oils have replaced the French oils.

The Spanish producing regions, where at present the bulk of thyme oil originates, are located in the province of Murcia and Almeria, entirely separated from the producing sections of Spanish origanum oil.

COLLECTION OF PLANT MATERIAL

Gathering of thyme in Spain takes place during the blooming period of this low growing shrub, from July to August; it is a task even more tedious than the collection of spike or rosemary.

DISTILLATION

Portable field stills as described under Oil of Spike are employed also for thyme. One charge consists of 30 to 40 arrobas (345 to 460 kilos) of plant material, the distillation lasting about six hours when about 140 to 180 liters of water have distilled over. The average yield of oil in Spain is about 1 kilo per 12 arrobas (1 arroba

= 11.5 kilos or about 25 pounds) of plant material which means about 0.73 per cent of oil. The condition of the plant material and the rather primitive method of distillation is probably the cause for the relatively low yield obtained in Spain. (For details see under Spanish Spike Lavender Oil.)

Youngken and Feldman,[5] found *Thymus vulgaris* to contain on the average 2.00 per cent volatile oil, stems 1.02 per cent.

According to Rosenthal,[6] the content of the volatile oil in *Thymus vulgaris* varies considerably among the single plants. The maximum was found to be 2.60 per cent. The second cutting yields more oil than the first one. In the course of a day, the maximum yield was obtained during the early afternoon.

(About fertilization experiments on cultivated American *Thymus vulgaris* see Bulletin No. 4, The Herb Society of America, Boston, Mass., March, 1944.)

PHYSICO-CHEMICAL PROPERTIES

Genuine oils distilled under the author's supervision in Spain had the following properties:

Place of Origin	Specific Gravity at 25°	Phenol Content	Solubility at 25°
Almeria	0.931	60.0%	Soluble in 1.5 vol. of 80% alcohol, cloudy with more.
Almeria	0.923	50.0%	Slightly opalescent in 1.5 to 2 vol. of 80% alcohol.
Almeria	0.923	51.0%	Slightly opalescent in 1.5 to 2 vol. of 80% alcohol.
Almeria	0.924	50.0%	Slightly opalescent in 1.5 to 2 vol. of 80% alcohol.
Almeria	0.922	51.0%	Slightly opalescent in 1.5 to 2 vol. of 80% alcohol.
Mula (Murcia)	0.930	55.0%	Soluble in 1.5 vol. of 80% alcohol, cloudy with more.

The phenols in thyme oil are crystallizable; this is the most important feature in the analysis of thyme oil, distinguishing it from origanum oil. A high specific gravity is associated with a high phenol content. The phenol content is determined by volume.

Genuine red thyme oils[7] imported from Spain in past years and analyzed in the laboratories of Fritzsche Brothers, Inc., had the following properties:

Specific Gravity at 25°	0.916 to 0.934
Optical Rotation at 20°	—0°16' to —1°23'
Refractive Index at 20°	1.4977 to 1.5040
Phenol Content (by volume)	45.5 to 59.0%
Solubility	Soluble in 2.5 to 3.5 vol. and more of 70% alcohol, on rare occasions with slight turbidity. Soluble in 3 vol. and more of 80% alcohol.
Color	Yellow—reddish.

ADULTERATION OF THYME OIL

Thyme oil is frequently adulterated by adding terpenes or the commercial product called "thymene," which is a by-product in the manufacture of thymol from ajowan oil and consists mainly of p-cymene, some camphene and γ-terpinene. Since these terpenes are also natural constituents of thyme oil, the analyst has difficulty in proving that they have been added, except by the fact that the phenol content of the oil decreases correspondingly. In order to reconstitute the phenol content, the adulterator usually adds synthetic carvacrol (noncrystallizable phenol). Therefore, the presence of substantial amounts of noncrystallizable phenol in a thyme oil indicates addition of synthetic carvacrol. This is usually confirmed by a slight creosote-like "by-odor," especially toward the end of evaporation on testing paper. When ordering thyme oil, the buyer would do well to specify a certain percentage of crystallizable phenols (thymol), rather than phenols in general.

PRODUCTION OF THYME OIL

The total yearly production of thyme oil in Spain has varied from about 12,000 kilos in 1932 to almost 15,000 kilos in 1935; it averaged 10,000 kilos in normal years. With the outbreak of the Spanish Civil War in 1936, production of thyme oil fell off considerably but since 1939 has again increased. World War II caused a heavy demand for Spanish thyme oil on part of Central Europe, especially Germany. The production in 1945 is estimated at about 25,000 kilos. As in prewar days, the most important buyers will be the United States and the United Kingdom.

1. "Spanish Essential Oils," *Am. Perfumer*, July 1929, 291.
2. *Perfumery Essential Oil Record* **14** (1923), 239.
3. *Ibid.*, **11** (1920), 339.
4. Private communication by Mr. Ramon Bordas, Sevilla, Spain.
5. *Bull. Natl. Formulary Comm.* **9** (1940), 70.
6. *Pharm. Ind.* **10** (1943), 22.
7. The commercial designation "Red Thyme Oil" implies that the oil has not been rectified. In its original form the oil possesses a reddish color.

(Editor's note: This article will be continued in the next issue.)

Thyme distillation in Almeria

Wild growing thyme in Spain

Cosmetic Trends in the Middle West

Large imports of cologne and perfume are considered impossible for the present . . . Summer sales of cleansing and tissue creams mounted steadily . . . Sachets and novelty soaps remain in short supply

by JEAN MOWAT

THE promotion of nationally advertised lines planned for this Fall by cosmetic buyers throughout this section will be carried out. At this writing no one is prepared to say what effect the ending of hostilities will have upon current production. Nor whether the number of people being processed into other jobs or retiring (and there are many thousands of the latter who have carried on through the war years), will seriously change the current status of selling.

IMPORTS CONSIDERED UNIMPORTANT

Imports of fine colognes and perfumes were predicted as very strong several weeks ago. These have all been disposed of and the buyers who have made annual trips to Europe report that there will be little if any competition for about a year as the flowers in Europe will require another summer before crops will be normal. The coming orders for the holidays have not been changed although few buyers are planning any increase in them due to the release of more alcohol.

NEW SHOPS OPENING

The Middle West is in for an influx of new shops that will offer the type of a cosmetic shop which has been popular in France for generations. Before the surrender of Japan these began opening their doors and it will be interesting to watch results. One of the most important additions to the cosmetic business is the announcement of C. D. Peacock & Co., Chicago, that it is opening a perfume department. This is rated big news in the industry for it means the higher-priced items will be offered and sold.

Evanston, Illinois, has just had two shops opened that are widely different in character and in program. Ruth Kagen has opened a shop at the busiest corner in this important suburb and it combines the smartness of a perfumery shop in Paris with the corner perfume bar of Mexico City. The decor is a combination of rococo and ultra modern, and frankly indicates that its products are "bait-catchers." There is a booth for a trial treatment of effects called a "facial bar."

The second shop is an intimate spot on a second floor in one of the important Evanston business blocks where Jean Le Masters, formerly cosmetic buyer for Edgar A. Stevens & Co., has opened to be top consultant to the business men and women of the community. Knowing the favorites in this line of national brands—the types the North Shore likes—and also its favored perfumes this young buyer is already far on the road to success.

These two shops, so different in their approach, from the intimate and cozy type of shop with its cool trimmings to the exotic one which tells the world what it has in a series of windows may be trends to be reflected in the days ahead. Some buyers have as much as said that the day of the big department store business was shifting to smaller shops. These smaller centers have their own clientele but it will take a great many more before there is an impression on the department or drug store trade.

NO AUGUST DOLDRUMS

At the beginning of August when peace with Japan seemed far distant, full pages of advertising were used by leading stores throughout this section to stress the smartness of summer cosmetics and colognes. The Twin Cities stressed the smartness of leg-make-up and even more of the perfect powder for the right face.

Des Moines, always a very hot summer spot, featured colognes as not only cooling but refreshing on the hot days and nights. Kansas City and St. Louis carried out this same general theme and Chicago stores followed with many pages devoted to everything for the cosmetic shelf in the home. Cake make-up and lipstick were leaders in advertising, but there was a marked up-turn in the sale of deodorants of all types. Since these have been a daily feature on the airlanes, buyers report more sales have been made across the counter. More can well be made from recent trips and indications seen about the country.

Speciality shops that had carried a few bottles of fine essence and some colognes took this time of year to present these in gay ads that suggested summer coolness. This was true in all cities.

As these ads were used just previous to the surrender announcement it was a definite new bid for business and was often featured next to ads for the new hats. While floral fragrances still are the leaders there is a switch to some of the heavier odors, especially where all black apparel is worn. It is said by buyers this carries a subtle theme with it when thus combined. We'll take their word for it, but some would be more subtle with a good deodorant.

For some years buyers of treatment lines have been trying to convince women that cleansing and tissue creams were as essential in summer as in winter. This year the idea has taken root and any type of cream that suggests youth—as the hormone combinations—has been all but impossible to keep on the shelf.

While everyone talks about cake make-up there are still enough women using the regular loose powder to make plenty of sales on the under creams. During the hot days many of these powder creams were used without powder and gave an effective appearance.

Throat and eye cream advertising has shown a great increase in space and it is being slowly reflected in the sales until buyers comment upon it. These are expected to move in larger units as cool weather approaches, but the summer sales are still much higher than in former years and there is not much resistance to the acceptance of these in a general sale of treatment items.

Looking into 1946 most buyers in this area are planning to confine their future buying of leg-lotions to their treatment lines. The season has not been as good as might be expected with the bare legs seen at every place, but those which did move were outstanding in the treatment lines, which is a tip buyers consider following.

SACHETS IN SHORT SUPPLY

Sachets are usually associated with holidays and gift packages but these have had a wide sale during the summer. No promotions have been staged because the supply was not large enough. Buyers express the hope that with more help and a better material situation more of these will come through for immediate sale.

Fitting into this same category is the short supply of novelty soaps, especially the type for children which has been in steady demand all summer and the supply so short that a case was sold in a few hours in any store. While there is not much increase expected in this for some little time, buyers do hope that the gay boxes will be on hand for Christmas sale, but even that may be too soon.

LOOKING AHEAD TO 1946

More cream depilatories, ready to apply are needed and there must be an increased supply. There are said to be few women who cannot use these, whereas the number who can apply the abrasive types are very limited. Some stores have barely escaped a suit for statements on how effective these were and yet did create much damage to tender skins. Probably, say buyers, women did not follow the explicit directions.

A greater variety of colognes are wanted for the coming year. Good leg lotions are also on the request list made of the cosmetic Santa Claus.

Summer weather so softens lipsticks that hundreds are returned because they break after the second or third using. Case lights are maintained to display merchandise and only a few stores have fluorescent lighting so that the stick goes out from a heated case.

Buyers assert that more "stick 'em" will prevent their heavy replacements and also the cost to the manufacturer.

Bath oils may be expected to replace the bubble bath in some localities, especially where the water is very hard. The only thing that may hinder this is the fun there is in a bubble-bath while the oil is just another softener.

The presentation of special cosmetic lines for the teen-age and Junior Miss is creating a bit of a flurry. Marshall Field & Co., introduced the idea, just before graduation days, in its accessory shops for the young teeners. Mandel Brothers has just completed a back-to-school fashion show promotion on its new line. The Mandel line sells separately and offers five shades of lipsticks and three types of cologne and all carry the gayest of names for the present generation, generally listed as "date-bait." While Field's sells items separately, the packaging has a distinct appeal. Also there is but one cologne and there is no lipstick, but a lovely shade of pink pomade.

The sales in both stores have been reported as fair to good. Both expect that the holiday trade will prove the value of these lines. Incidentally, with girls going back to school instead of earning war-wages, the drug chains and near-by cities are watching the reaction of the local Chicago public to these. The drug concerns have concentrated full pages on the idea of femininity and stressed national lines. Such advertising in mid-August is unusual and yet proved effective.

French Perfumes Scarce

Sizable supplies of French perfume will not begin to be available here until next Spring, Charles S. Gage, vice-president of Lentheric, Inc., New York, N. Y., said, on his return from a four-week inspection trip to France. He was accompanied by Kurt Loesch, also a vice-president of the company.

"While the French perfume industry has come through the war fairly intact," Gage said, "its present production is being retarded by general economic conditions there."

American and British service men have stripped the shops of perfume and reserve stocks are very low at present, he said. Reporting that small allotments are quickly snapped up, despite existing high prices, he said the daily supply at the company's salon in Paris is sold out within ten minutes.

Pointing out that the shortage of coal in France has cut the distilling of essential oils needed for perfumes, as well as for producing bottles and other needed materials, Gage said there is also a scarcity of flowers, fats and solvents for extracting purposes.

"All available coal in France will be needed to help keep the people warm this winter," Gage declared, "so the perfume and other luxury industries there will have to wait until Spring before it will be possible to get enough for power and other production purposes."

Expressing the belief that many of the present difficulties will be cleared away within the next six months, Gage predicted a greater postwar demand for French perfumes in this country.

Gage reported that the Lentheric laboratories in Puteaux and salon in Paris were intact and "in need of only a coat of paint."

Commenting on the perfume situation in England, where he visited the company's London salon and offices, Gage said the revival of the industry there will probably be extremely slow due to severe government restrictions which are expected to continue on the importation and sale of luxury goods.

French Perfume Factories

Word has reached this country that through air bombardment Guerlain's Courbevoie factory was completely destroyed.

Synthesis of Substituted Indoles

Indoles can be prepared through the use of potassium alcoholates . . . The presence of nitrogen in a benzene ring interferes with their production . . . Procedures are given for extracting indole

by LÉO MARION[2] and WALTER R. ASHFORD[3]

THE use of sodium ethylate as condensing agent in the preparation of 2-substituted indoles from various acetotoluidides has been recorded by Madelung[3] although he did not succeed in obtaining indoles unsubstituted in the pyrrole ring. Later Verley[7] claimed to have prepared 2-methylindole and indole itself by the action of sodamide on *o*-acetotoluidide and *o*-formotoluidide. Tyson,[5] however, was unable to obtain indole by the use of sodamide, but found that potassium ethylate or potassium *tert.*-butylate does bring about ring closure in *o*-formotoluidide and produces a good yield of indole.

It was of interest, therefore, to ascertain whether the use of potassium alcoholates could be extended to the preparation of indoles carrying a substituent in the 3-position and also those substituted on the nitrogen. It has now been found that 3-methylindole can be prepared by this method as well as 2,3-dimethylindole. Furthermore 1-methylindole and 1,2,3-trimethylindole can be prepared in a like manner, but when the nitrogen carried a methyl group the reaction was complex and the yields were small.

Tyson,[6] (pp. 42-45) has assumed a mechanism for the ring closure which involves the formation of a potassium derivative of the *o*-formotoluidide employed:

$$o\text{-}CH_3.C_6H_4.NH.CHO + (CH_3)_3COK \rightarrow o\text{-}CH_3.C_6H_4.N(CHO)K + C_4H_9OH$$

$$o\text{-}CH_3.C_6H_4.N(CHO)K \rightarrow o\text{-}CH_3.C_6H_4.NHK + CO$$

$$o\text{-}CH_3.C_6H_4.NHK + o\text{-}CH_3.C_6H_4.N(CHO)K \rightarrow o\text{-}CH_3.C_6H_4.NH_2 + KOH + C_8H_6NK$$

$$C_8H_6NK + H_2O \rightarrow C_8H_7N + KOH$$

Such a mechanism is impossible when the nitrogen carries another substituent as in the formation of 1-methylindole from N-methyl *o*-formotoluidide since the nitrogen in the latter is completely substituted and could not, therefore, form a potassium salt.

A study has been made of this case of ring closure and although no new mechanism can be suggested other than a direct elimination of the elements of water, it has been found that the reaction was complex and gave rise to a mixture of indoles. The reaction, which appeared to proceed in definite visible stages, was different from what occurred when the nitrogen carried no methyl group. It gave rise to various by-products, one of which was found to be decomposed by water into N-methyl-*o*-toluidine and potassium hydroxide and it, therefore, seemed to be the potassium derivative of the former.

It was also found that the 1-methylindole formed in the reaction was accompanied by a small quantity of unsubstituted indole. This partial removal of the methyl group together with the partial removal of the formyl group account at least in part for the low yields of 1-methylindoles prepared by this method, and for the fact that they were always difficult to obtain pure. The low yields were also observed in the preparation of 1,2,3-trimethylindole and other 1-methylindoles not reported here.

This method of ring closure cannot be generalized as much as had been expected. The presence of a nitro group in the benzene ring interfered with the reaction and no indole could be obtained from the formyl derivative of 2-methyl-5-nitro-aniline. Application of the reaction to 2-methyl-4-methoxyformanilide was also unsuccessful and it produced only a very small quantity of an indole that contained no methoxyl.

EXPERIMENTAL

Since all the ring closures were carried out as described by Tyson[5, 6] no further description will be given.

2-ACETAMINO-ETHLYBENZENE

Ethylbenzene (100 gm.) was nitrated at 45 deg. C. with a mixture of nitric acid (sp. gr. 1.456,82.5 gm.) and concentrated sulfuric acid (107.6 gm.). The reaction mixture was afterwards kept for one hour on the steambath, cooled, and poured on to cracked ice. The precipitated oil was dissolved in benzene, washed with water, dried, and the solvent distilled off. The residual nitro-oil was fractionated through a Stedman column and the *o*-nitro-ethylbenzene boiling at 70 deg. (< 1 mm.) collected; yield, 23 per cent.

2-Amino-ethylbenzene was obtained in 65.5 per cent yield when *o*-nitro-ethylbenzene was reduced with iron and alcoholic hydrochloric acid. It consists of a yellow oil boiling at 91 to 95 deg. (8 mm.). It was characterized by conversion to the acetyl derivative by the action of acetic anhydride in absolute benzene. When re-

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[1]*Manuscript received June 26, 1944. Contribution from the Division of Chemistry, National Research Laboratories, Ottawa, Canada. Issued as N. R. C. No. 1244.*

[2]*Chemist.*

[3]*Now chemist, the Dominion Rubber Co., Guelph, Ont.*

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crystallized from benzene-petroleum-ether, 2-acetamino-ethylbenzene consisted of fine colorless needles melting at 115 deg.*. Paucksch[4] reports 111 to 112 deg. (uncorr.) as the melting point.

2,3-DIMETHYLINDOLE

2-Acetamino-1-ethylbenzene (15.5 gm.) was heated with potassium (5.5 gm.) dissolved in *tert.*-butyl alcohol (114 cc.). The 2,3-dimethylindole produced was separated from the mixture by steam-distillation. It was distilled *in vacuo*, b. p. 85 to 90 deg. C. (1 mm.) and recrystallized from ether — petroleum-ether from which it separated as colorless glistening flakes melting at 108 deg. either alone or in admixture with an authentic specimen. Wt., 6 gm.; yield, 43.5 per cent. The picrate, consisting of brownish red needles, melted at 159 deg. either alone or after admixture with a specimen of 2,3-dimethylindole picrate.

3-METHYL-INDOLE

2-Amino-1-ethylbenzene (19 gm.) was heated with 87 per cent formic acid (8 cc.) overnight and the 2-formamino-1-ethylbenzene obtained was recrystallized from benzene-petroleum-ether, from which it separated as sheaves of soft needles melting at 77 deg. C. Wt., 14.6 gm. 2-Formaminoethylbenzene (7 gm.) was converted to 3-methyl-indole by heating with potassium (2.74 gm.) and *tert.*-butyl alcohol (57 cc.). The steam-distilled product, isolated as usual, was distilled (b. p. 90 to 95 deg. (1 mm.)) and crystallized from petroleum ether. It weighed 4.2 gm. (68 per cent yield) and melted at 96.5 deg. either alone or in admixture with an authentic specimen. The picrate melted at 182 deg. and admixture with a specimen of skatole picrate failed to depress the melting point.

1, 2, 3-TRIMETHYLINDOLE

2-Formamino-1-ethylbenzene (14.5 gm.) was refluxed with methyl iodide (15 gm.) and a solution of potassium hydroxide (5 gm.) in absolute ethyl alcohol (100 gm.) for two hours. The potassium iodide was filtered off and the alcohol removed by distillation. The oily residue was added to an equal volume of water and the mixture refluxed with concentrated hydrochloric acid (40 cc.) for one hour. The resulting homogeneous solution was basified with strong aqueous sodium hydroxide and the separated oil collected in ether. The extract was washed with water, dried over anhydrous sodium sulfate, and distilled on the steam-bath to remove the solvent. The residual oil was distilled *in vacuo* and the fraction boiling at 65 to 70 deg. (1 mm.) collected. Wt., 12 gm. Yield, 91 per cent. The 2-ethyl-N-methylaniline thus obtained is a light yellow oil.

2-Ethyl-N-methylaniline (12 gm.) was acetylated by dissolving in dry benzene (18 cc.), adding acetic anhydride (15 gm.) and allowing to stand overnight. Next morning, the solution was diluted with benzene, washed repeatedly with water, dried over anhydrous sodium sulfate, and distilled to remove the solvent. The residual oil was fractionated *in vacuo* and the fraction boiling at 90 deg. C. (1 mm.) refractionated twice to remove a small quantity of crystalline material that remained each time in the residue. 2-Ethyl-N-methylacetanilide was finally obtained as a faintly yellow oil; Wt., 13 gm. Calc. for $C_{11}H_{15}ON$: N, 7.96 per cent. Found: N, 7.91 per cent.

From 2-ethyl-N-methylacetanilide (12.5 gm.), potassium (4.1 gm.) and *tert.*-butyl alcohol (85 cc.), 1,2,3-trimethylindole was obtained as a faintly yellow oil boiling at 75 deg. C. (0.5 mm.); Wt., 1.6 gm.; yield, 14.5 per cent. The picrate, when recrystallized from benzene-petroleum-ether, melted at 154 deg. Degen[1] records 150 (uncorr.) as the melting point. Calc. for $C_{11}H_{13}N.C_6H_3O_7N_3$: C, 52.58; H, 4.12; N, 14.43 per cent. Found: C, 52.69; H, 4.20; N, 14.27 per cent.

1-METHYLINDOLE

A mixture of *o*-toluidine (53.5 gm.) and 87 per cent formic acid (30 gm.) was heated overnight on the steam-bath. The crystalline *o*-formotoluidide obtained was recrystallized from benzene-petroleum-ether from which it separated as colorless plates melting at 62 deg.; Wt., 51 gm.

o-Formotoluidide (40 gm.), potassium hydroxide (14.8 gm.) in 99 per cent ethyl alcohol (270 gm.) and methyl iodide (52 gm.) were mixed and refluxed gently for 15 hr. After cooling, the potassium iodide was filtered off, the alcohol removed by distillation and the residual oil dried over anhydrous potassium carbonate and fractionated through a short column packed with glass helices. N-Methyl-*o*-formotoluidide boiled at 85 to 90 deg. (1 mm.); Wt., 20 gm. Calc. for $C_9H_{11}ON$: C, 72.48; H, 7.38 per cent. Found: C, 72.58, 72.33; H, 7.61, 7.59 per cent.

When N-methyl-*o*-formotoluidide (15.7 gm.) was treated with potassium (6.2 gm.) and *tert*-butyl alcohol (127 cc.) as in the previous cases, it yielded an oil from which four fractions were obtained: Fr. I, b.p. 63 deg. C. (2 mm.); Fr. II, b.p. 65 to 69 deg. (2 mm.); Fr. III, b.p. 69 to 75 deg. (2 mm.); and Fr. IV b.p. 85 to 90 deg. (2 mm.). The total weight of these fractions represented a yield of about 10 per cent of indoles. All four fractions were treated with picric acid. The picrates obtained from Fractions I and II were identical. Both melted at 176 deg. and in admixture with indole picrate (m.p. 187 deg.) melted at 179 to 181 deg. Hence they consisted of impure indole picrate. Fraction III was still a mixture and could not be identified. Fraction IV yielded a picrate melting at 152 deg., and no depression was observed after admixture with an authentic sample of 1-methylindole picrate prepared by Fischer's method[2]. Calc. for $C_9H_9N.C_6H_3O_7N_3$: C, 50.0; H, 3.33; N, 15.55 per cent. Found: C, 49.83, 49.92; H, 3.49, 3.41; N, 15.60, 15.82 per cent.

It is noteworthy that contrary to what happens ordinarily the ring closure reaction seems to proceed in definite visible steps when a methyl group is substituted for a hydrogen on the nitrogen of the *o*-formotoluidide. At a temperature of 290 deg. C. in the formation of 1-methylindole the flask became filled with a white fluffy material that disappeared as the temperature increased. At 320 deg., a white crystalline substance condensed in the gooseneck of the apparatus, and at 350 deg., the reacting mass assumed a dark brown or black color. Some of the white fluffy material forming at 290 deg. was isolated and crystallized from a mixture of methanol and absolute ether from which it separated

*All melting points are corrected.

as white needles that did not melt at 350 deg. This material, which is a potassium salt, was not further identified.

The second crystalline substance which formed at 320 deg. C. was also isolated. It did not melt at 300 deg. and was found to decompose in water, producing an insoluble oil and a basic aqueous solution. A quantity of material (8 gm.) when added to water produced 6 gm. of an oil that boiled at 50 to 55 deg. (0.5 mm.). This oil formed a crystalline picrate, which, after two recrystallizations from methanol-ether melted at 149 deg. either alone or in admixture with the picrate of N-methyl-*o*-toluidine. Calc. for $C_6H_{11}N.C_6H_3O_7N_3$: C 48.00; H, 4.00 per cent. Found: C, 48.02, 48.19; H, 4.05, 4.22 per cent. The aqueous solution, which was basic, was found qualitatively to contain potassium hydroxide and potassium carbonate.

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Report on the Perfume Industry in Grasse

by OUR GRASSE CORRESPONDENT

During the war, the Grasse factories have always managed to maintain a small volume of business, their activity being of course reduced to the treatment of the local production of flowers and plants and transactions on the existing stocks.

During the war, and specially during the enemy occupation in 1943 and 1944, the importance of the crops lessened regularly every year, owing to the almost complete lack of products for agriculture. Nevertheless the crops have always been important enough to keep the factories going.

This year the Rose crop was still further reduced by several frosts which happened at the end of April and specially on May 2nd and 3rd. These late frosts are very rarely encountered in our region, and nothing similar had been seen for a dozen years. Most of the early buds were destroyed.

The production of Neroli is also very small for the same reason as above, and that of Jasmine will probably be worse still. But if the effects of late frosts are important this year regarding the production of Rose Absolute and Neroli, their action will be durable on Jasmine, as lots of plantations have been completely destroyed, and it will take some time to start new ones.

Tuberose and Geranium crops have been about normal, that of Lavender is not finished yet. But it can be already said that owing to the complete absence of rain for several months, the Lavender crop will be inferior to the average and the prices of oil of Lavender are already going up.

The reduction of the various flower crops is, of course, accompanied by an increasing demand and all prices are very firm.

The following prices are offered now on the Grasse market:

Rose (absolute) 1945 crop, Frs. 65.000
Neroli (oil) 1945 crop, Frs. 33.000
Geranium (oil) 1945 crop, Frs. 3.600
Lavender (oil) 1945 crop, Frs. 1.200/1.500 (prices increasing)
Lavendin (oil) 1945 crop Frs. 600 (prices increasing)
Tuberose (absolute) 1944 crop, very rare
Jonquille (absolute) 1945 crop, Frs. 130.000
Jasmine (absolute) 1944 crop, Frs. 180.000

I would have been glad to let you know the size of the various crops, but this would have required investigations which I have not yet been able to make.

There have been no changes among the producing houses, no new firm has appeared, none has disappeared. Besides, commerce is very strictly regulated over here and it is not possible, at the present time, to start a new concern.

The Grasse firms are working on the local production, and what remains of the stocks. There is practically no importation of foreign products and exportations are not yet important. The French market absorbs most of the present production.

Products from the French colonies are offered at interesting f.o.b. prices, but owing to the very reduced freight available, they arrive very slowly and in small quantities in our ports, and do not help the Grasse factories to increase their production.

All products of foreign origin (vetivert ylang-ylang, etc.) are almost completely missing, and the situation is the same for synthetic products, very rare.

The most interesting feature during the last years has been the always increasing demand for Anethol which, in regard to a reduced production, resulted in an extraordinary increase of price. Quotations in 1939 were of Frs. 125 a kilo. The 1944 crop was sold at the end at Frs. 16.000, and 19.000 are now asked for the 1945 crop. Anis and Star Anis seeds not having been imported since the war, all the Anethol now sold over here comes from the local production of sweet fennel seeds.

But these prices are so high that a reaction has started, helped by the announcement of possible importation of seeds from North Africa. Local sweet fennel seeds offered at Frs. 340 per kilo, find no buyers at Frs. 170. Distillers have stopped buying, awaiting the developments of the situation.

This important demand for Anethol does not seem ready to cease. It enters in the composition of Anis liquors, which, although their sale is restricted by authorities, are much cared for by the Allied troops in France.

Short Adages

by R. O'MATTICK

DR. ROWMATERAL returned to his laboratory after the two-day V-J celebration, wondering what, if anything, would be different from what it was when he left that Tuesday afternoon before final word came about the end of the war. Like everyone else he was happy that the war is over—that the large scale slaughter of human beings has ceased. But he knew that the world would not suddenly become a Utopia—certainly not overnight. He knew that Mr. H. Power would be relieved because now he could get all the gasoline he wanted, to go any place he wished—and that with new tires not too far away in the future all of Mr. Power's worries would be over—come what may. But the good Doctor was thinking of many things—reconversion (not of his own tiny shop)—but of the reconversion of the *whole world* from war to peace! How soon will it come? What will happen in between? . . . He had been through a trying life during the First World War and he survived—so had the whole world been through a trying time and yet it goes on—rotating on its axis-revolving around the sun, day in day out—year in year out! Dr. Rowmateral does not take things lightly but at heart he is an optimist and he believes that somehow things *will* work out—all for the best, and that the world is ready to start a new day. We believe this, too, and hope that you do.

* * *

We have asked the post-war ambitions of our well-known friends.

Otto Stock: "I haven't given the subject deep thought but I am waiting for the day when I shall be able to say: 'I have enough of this to last me ten years' (without lying about it)."

* * *

Pat Chouli: "One of my ambitions is to get an order for ten products without having to give nine excuses and have the customer receive the merchandise on the day that he was promised it in the kind of containers most suited to the products without making the poor fellow feel that anyone was doing him a very special favor."

* * *

June Ippére: "Just say that I have to get many more of the government forms that I tore up on Tuesday and threw out of the window and that I hope to see the day when I don't have to fill out any forms except the one having to do with the marriage license the boy-friend and I will get when he returns."

* * *

My ambition, exclaimed Cory Ander, is to hear the word *substitute* only when my little Jimmy's teacher is sick and he comes home from school to tell us that a substitute took over the class and that he likes his substitute even more than he liked the real thing.

"Shouldn't your night cream sell better than your day cream in Fall?—Nights are longer!"

Dr. Rowmateral's post-war ambition is a vast undertaking which will involve the use of atomic energy to create a perfume which will contain terpeneless oils from which the terpenes have been split off by means of U-235 and the off-odors have been removed from the various ingredients by the tangential motions of electrons departing from the protons at will and under the complete control of Dr. Rowmateral. He has hopes that such perfumes will surpass any that have ever been created in the past as their tonal effect will vary as the square of the orbital motions of the neutrons. But meanwhile he is looking for a few pounds of coumarin to use in his old pre-atomic formulas.

* * *

The Editor wanted us to go into more detail on the above plans of Dr. Rowmateral but we are against giving away anybody's secret, particularly that of an old, regular and paid-up subscriber to THE AMERICAN PERFUMER.

* * *

However, when Dr. Rowmateral has worked out his plans completely and has put his Atomic Perfume on the market, we shall invite him to contribute an article to this department making clear his views on the subject. Right now we are so hazy about them that we feel as though we had been struck by an atomic bomb.

* * *

A sign recently posted in the offices of a well-known supplier of raw materials to the Cosmetic Industry: "Now that the War is over, the customer is once again 'always right' as of V-J Day."

* * *

Our Official News Scout has explained to us the origin of divers rumors and how two and two doesn't always make four, or even four and one quarter.

Just because a well-known lady manufacturer of cosmetics was seen in the party of the top-flight executives of a famous Soup Company at the recent tennis matches at Forest Hills doesn't mean that the Soup Company is going to take over this lady's Cosmetic Business.

Yet a number of people from the cosmetic field and allied pastures spotted the party at the Tennis Stadium and began to put two and two together. But it still doesn't make four.

Technical Abstracts from Scientific Literature

These brief abstracts listed provide a convenient key to current scientific literature of the world on perfumes, cosmetics, soaps, dentifrices and other preparations

Dyeing Hair. *U. S. 2,338,745.* A process is employed which involves premordanting the hair by applying a dilute aqueous solution containing a lake-forming metal salt, such as a 0.5 per cent solution of ferrous sulphate which is heated to within the approximate range of 70-130°F, and then, while the hair is still moist, applying an acidified dilute aqueous solution containing a nondeleterious acid such as acetic acid, and a water soluble synthetic organic dye such as Pontachrome Fast Yellow R and which is heated to a temperature within the same approximate range. U. S. 2,338,746 relates to the use in aqueous solutions of a lake-forming metal salt, such as ferrous sulfate, and a water-soluble synthetic organic dye, such as a chrome dye, the solutions being heated to a temperature in the approximate range of 70-110° F.

Nitrocellulose Lacquers. *Evaluation of Low-Viscosity Nitrocelluloses in Nonoxidizing Alkyd Resin Lacquers.* W. Koch. *Ind. & Eng. Chem.*, **36**, *756, 1944.* Four low-viscosity nitrocelluloses with viscosities of 19, 27, 33, and 40 centipoises, all below RS ¼-second type, were evaluated in five compositions with each of four commercial nonoxidizing alkyd resins for Sward rocker hardness and for temperature-change resistance after 6 months of weathering at Miami, Fla., and after a combined outdoor exposure of 3 months at Miami and 3 years at Wilmington, Del. The data furnish evidence that satisfactory lacquers of the automobile finishing type can be made by combining nitrocellulose having viscosities as low as 27 centipoises with nonoxidizing alkyd resins. This limitation does not apply to resins such as drying oil types which are good film formers, where still lower-viscosity nitrocellulose is used to obtain quick-setting tack-free films. One of the type formulas used: nitrocellulose 10, resin (solid) 7.5, dibutyl phthalate 4, pigment 8.6 (parts by weight).

Resins used: beckosol 1308, glyptals 2471 and 2477, rezyl 99.

Lacquer solvent: 10 per cent ethyl acetate; 20 per cent butyl acetate; 10 per cent denatured ethyl alcohol; 7 per cent butanol; 25 per cent toluene; 28 per cent xylene (by weight).

Dermatitis From Lemon Grass Oil (Cymbopogon Citratus or Andropogon Citratus). H. Victor Mendelsohn, M.D. *Arch. Derm. & Syphl.*, **50**, *No. 1, 34, 1944.* Lemon grass oil is a primary irritant and/or a strong sensitizing agent. The relatively large number of workers affected (the total number is presumed to be 30) and the bullous reaction to a patch test with the soiled pine wood indicate possible primary irritation. On the other hand, the six to eighteen day incubation period and the eczematous reaction to a patch test with the soiled pine wood in 2 other patients strongly suggest sensitization.

The eruption resembled poison ivy dermatitis and appeared six to eighteen days after the men had worked on a boat which had arrived from India with a cargo of lemon grass oil.

Film-Forming Compositions Suitable for Use on the Skin or for Other Purposes. *U. S. 2,338,416.* Water is used, containing per gallon, about 0.5-4 ounces of aloin and at least a half ounce of water-soluble pelliculizing gum such as gum tragacanth (the gum and at least a portion of the aloin being dissolved in the water).

Coal Tar Emulsions. Timoteo A. Estevez. *Rev. Facultad cienc. quim. (Univ. nacl. La Plata)*, **17**, *51-64, 1942.* Tinctures of quillaja with coal tar prepared by the methods of various pharmacopeias give with water emulsions of the alcohol-soluble components of the tar of the oil-in-water type all of similar degree of dispersion and stability. The British pharmacopeia gives the most recommendable method. The coal-tar fraction soluble in 95 per cent ethyl alcohol gives a good emulsion by shaking at a ratio of 2 per cent with an aqueous saponin solution. Triethanolamine oleate gives good 4 per cent aqueous emulsions. (*Through C. A.* **38**, *3418, 1944.*)

Effect of Increase in Acidity on Antiseptic Efficiency. Otto Rahn and Jean E. Conn. (Through *Ind. & Eng. Chem.*, **36**, *185, 1944.*) Benzoic acid, salicylic acid, and sulfurous acid are nearly a hundred times as efficient antiseptics in strongly acid solutions as they are in neutral solutions. With benzoic and salicylic acids, only the undissociated acid is antiseptic; the benzoate and salicylate ions appear to have practically no effect on yeast. Multiplication of the yeast was inhibited whenever the undissociated benzoic acid concentration was above 25 mg per 100 ml. With salicylic acid the limiting concentration was 4 mg. of undissociated acid per 100 ml. Sulfur dioxide in water dissociates to harmless SO_3 ions, and to HSO_3 ions which inhibit the multiplication of Bacterium coli but not of yeast. The yeast is inhibited only by undissociated H_2SO_3. The rapid death of yeast is brought about by 7 to 8 mg. of undissociated H_2SO_3 per 100 ml.; Bacterium coli can tolerate nearly ten times as much.

Packaging Portfolio

QUEEN HELENE: A trio of cologne, bubble bath and bath oil is the Sweater Girl Juke Box presentation by Queen Helene. The bottles are encased in velvety fabrics and capped in pastels. The juke box—a replica of the real thing—is done in gold, yellow, red and black.

HERB FARM SHOP

QUEEN HELENE

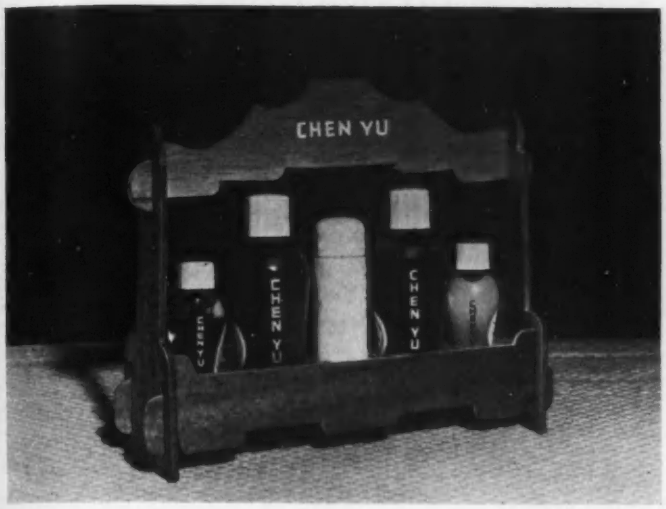
HERB FARM SHOP: DeLuxe Bath Corsage, containing sachet and dusting powder, soap, bath essence and toilet water, is presented by the Herb Farm Shop. The attractive package accents gift-time.

MARIA DANICA: Toilet water, bubble bath and talc scented with the odor of Love-in-a-Mist is created by Maria Danica. The labels portray the charming flower and luminous blue caps the bottles.

L'AIGLON: Russian Leather men's toiletries are scented with an invigorating masculine odor. The bottles are simple, distinguished, capped in white plastic. A blue band and gold embossed printing and crest decorate the white folding box.

L'AIGLON

MARIA DANICA



CHEN YU

VOLUPTE

MAURELLA

VOLUPTE: Sterling silver in the Silver Psyche pattern is the new Volupte compact. The design is circular and a stylized leaf pattern encircles a plain silver center just large enough for a monogram.

CHEN YU: The new Chen Yu Pagoda Package is designed to hold all the nail essentials and a Chen Yu lipstick. Beautifully finished in mahogany, the miniature pagoda is an asset to any dressing tabe.

MAURELLA: Timber is new in men's toiletry packaging. Maurella Products offers the items in miniature logs. The rustic packages, of woodlike brown, are set off with copper name plates. The new line has all the masculine appeal of a hunting trip.

CEDA: Valse de Fleurs by Ceda, a lilting floral fragrance, comes in colorful, gay floral and bowknot motifs. Aero Club, Ceda's men's toiletries, are presented in tweedy, air-minded masculine packages.

CEDA

CEDA

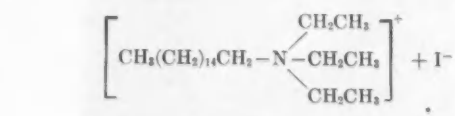
SOAPS

Quaternary Ammonium Surface Active Agents

Quaternary ammonium compounds lower the surface tension of water . . . Their greatest application is in the disinfectant and sanitation fields . . . The cost of these compounds is relatively high as compared with other synthetic detergents

by H. W. ZUSSMAN
Alrose Chemical Co., Providence, R. I.

THE surface active quaternary ammonium compounds have been described as "invert soaps" for, like ordinary soaps, they lower the surface tension of water in very dilute solution, and are useful foaming, emulsifying, cleaning and wetting agents. Unlike ordinary soaps and the more common synthetic detergents, however, they dissociate to form a positively charged high molecular weight hydrocarbon residue containing pentavalent nitrogen, and a negatively charged ion. Thus, products such as sodium laurate and sodium lauryl sulfate (anionic) dissociate: $CH_3(CH_2)_{10}COO^- + Na^+$ and $CH_3(CH_2)_{10}CH_2OSO_3^- + Na^+$ while a typical quaternary ammonium compound (cationic)—cetyl triethyl ammonium iodide—may be represented:



This compound, incidentally, was described in 1913 by Reychler, who recognized its soap-like properties and recommended its use as a detergent for wool. Products of this type had been known even earlier; octyl trimethyl ammonium iodide had been described in 1897, and the decyl (C 10) and cetyl (C 16) compounds in 1911.

TEXTILE USES DEVELOPED

However, these compounds excited little interest until the 1920's when various textile uses for invert soaps were developed. In 1928, Hartmann and Kagi—referring to the work of Doerr—noted that cationic surface active agents in general were toxic to lower forms of life. Then, in 1935, Domagk—who was soon to receive a Nobel award for his work on sulfanilamide—published a report on the germicidal properties of some quaternary ammonium compounds, finding a number several hundred times more effective than phenol. Exploitation of this field received tremendous impetus; laboratory curiosities not so many years ago, the annual sales value of these products today is considerably in excess of one million dollars, with applications ranging from disinfection to textile processing to ore flotation.

The rapidly accumulating patent literature covers a seemingly endless variety of quaternary ammonium compounds, but the commercial types are relatively few. This group includes products both crystalline and amorphous, waxy solids and viscous oils—all, in varying degrees, soluble in water and in a remarkably wide range of organic solvents as well. They are not compatible, however, with ordinary soaps, alcohol sulfates, sulfonates, and other high molecular weight negatively charged (anionic) materials, but they are not precipitated by calcium, magnesium, or heavy metal ions. They are stable over a wide pH range, stable in storage, relatively inert, and non-corrosive. These products are generally marketed in neutral aqueous solution, but some are available as 100 per cent active material; unlike many other synthetic detergents, the quaternary ammonium compounds are usually salt free. They are odorless, generally bitter to the taste, non-staining, and non-irritant to mucous membranes at practical concentrations. There is no evidence, as yet, that they are absorbed through the

skin. Toxicity of these compounds fed orally has been determined in a few cases; but at least one manufacturer recommends his product for spraying fruit and for purifying water for livestock. Surface active properties vary with the particular compound as well as with the conditions of use.

TOXIC TO LOWER FORMS OF LIFE

As intimated above, these products are highly toxic to lower forms of life. The general effectiveness of the quaternary ammonium compounds in controlling bacteria, protozoa, fungi, algae, and even insects, is enhanced by their excellent wetting and penetrating properties. The more outstanding compounds of this group will inhibit bacterial growth at concentrations far less than 1:100,000; growth of yeast and fungi is completely inhibited at somewhat higher concentrations. Bacteria such as staphylococcus aureus and Eberthella typhosa (standard test organisms) are killed in less than 10 minutes at concentrations far less than 1:10,000. Phenol, used as a basis of comparison, kills these bacteria at somewhat higher than 1 per cent concentration. Some of the quaternary ammonium compounds suffer a marked decrease in germicidal activity in the presence of organic matter (serum); the addition of alcohol counteracts this disadvantage to some extent. However, a number of products are unaffected by serum, while some compounds reported in the literature are actually more active in the presence of serum than in pure water. Germicidal activity varies with the pH of the medium and in general, is adversely affected by the presence of ordinary soaps and other high molecular weight anionic materials, lecithin and apparently by at least some non-ionic surface active agents.

APPLICATION IN SANITATION FIELD

The greatest single application for these products at the present time is in the disinfectant and sanitation fields. For many uses, they easily surpass older germicides on a performance/value basis. Thus, they are rapidly displacing competitive products as hospital disinfectants: cleaning and storing surgical instruments and equipment, preoperative and therapeutic disinfection. Their general effectiveness, mildness, and unobjectionable character recommend these products as household disinfectants—a huge potential market not yet seriously invaded, but certain to be tapped once the supply situation improves. These same properties suggest their more general use in the cosmetic and proprietary fields.

In view of the restrictions on the biocidal action, and the incompatibilities, of the invert soaps, new formulations should be tested rigorously to avoid the pitfalls encountered in the development of new products; but the painstaking efforts demanded in working a new field are amply compensated by the opportunities available.

COMPOSITIONS FOR COMPOUNDS

Compositions suggested in the patent literature include protective creams, sulfur lotions, cough drops, dusting powders, antiseptic lotions and creams, mouthwashes and dentifrices, hair dressings, eye washes, nose drops, gargles, foot preparations, baby oils, jellies, suppositories, douches. Still wider application is suggested in use as a preservative. Some of the quaternary ammonium compounds have been used successfully in treating athlete's foot, impetigo, certain types of industrial dermatitis, and may be of some use in controlling acne.

A recent study indicates the quaternary ammonium compounds are capable of forming continuous films on the skin; these films are stable for hours and are bactericidal on the outer surface.

USE AS HAIR SHAMPOO

One should not lose sight of the less sensational applications of these products as soaps and emulsifying agents. An especially promising application is as a hair shampoo, representing a radical departure from current practice. In common with the better anionic synthetic detergents, some of the quaternary ammonium compounds have unusually good foaming and lathering properties, may be used in hard water, rinse easily, and leave no undesirable film on the scalp; the hair acquires lustre and softness, but is not excessively defatted. While certainly no competitor for ordinary soap in everyday use, the invert soaps may be used in cases of unusual skin sensitivity where low pH and freedom from fatty acids are indicated, as well as when antiseptic action is required. The solublizing action of the invert soaps may be put to good use in solublizing hair dyes, perfumes, therapeutic agents, and flavoring materials.

PATENTS ON COMPOUNDS

The literature on the emulsion technology of the quaternary ammonium compounds is limited to a few patents. A recent British patent points out that emulsions prepared with cationic agents are characterized by positively charged colloid particles; in contrast, ordinary soaps and other anionic emulsifying agents produce negatively charged colloid particles. While this difference in charge is of some significance in certain industrial applications of emulsions, there may or may not be a parallel significance in cosmetic emulsion manufacture and application. Anhydrous quaternary ammonium compounds may be dissolved in a number of organic materials to produce self-emulsifying preparations of various types. They may also be used in conjunction with other emulsifying agents such as glue, gelatin, starch, agar, tragacanth, and other gums. Thickening and thinning effects may be obtained by proper selection and use of emulsifier. A very recent American patent indicates that pectin, in conjunction with quaternary ammonium compounds, produces viscous emulsions of unusually high stability.

GENERAL USE SOMEWHAT HINDERED

Two factors have militated against the more general use of quaternary ammonium compounds: the demands of the government services on the bulk of production, and the relatively high cost of many of these products as compared with other synthetic detergents. The first factor will eliminate itself in the natural course of events; while the certain development of new products from inexpensive raw materials and improvement of manufacturing techniques will assure an equitable adjustment of cost. Still relatively new products, the quaternary ammonium compounds are well worth investigating for post-war possibilities in the cosmetic and proprietary fields.

FLAVORS

Solvents for the Flavor Industry

Solvent in a flavor is not merely a diluent for it plays a most important role in determining the character of a flavor

by MORRIS B. JACOBS, PH.D.

THE solvents used for the preparation of flavors are of the utmost importance. A principal function that a solvent serves is that of diluting the flavoring materials to which it has been added. This is a factor of great value for if flavors were used undiluted, the gross strength would be so great that an excess or shortage of one drop of liquid flavor material or of even a small amount of solid flavor material would cause a very large difference in the amount of actual flavoring added. By the employment of a solvent diluent the need for high accuracy by the housewife or food processor in the addition of the flavor component of a product is diminished or may be eliminated entirely. The principal solvents used in the flavor industry are: water, ethyl alcohol, glycerol, propylene glycol, triacetin, odorless and tasteless vegetable oils and some of the flavor esters themselves like ethyl acetate. The sugar syrups may in some measure be considered solvent diluents. Other solvents of lesser importance that are employed occasionally are monoacetin and diacetin, and the ethyl ethers of glycerol, particularly the monoethyl ether. In some countries derivatives of the glycols like diethylene glycol monoethyl ether (Carbitol)[1] are used but this solvent is considered harmful by the Food and Drug Administration.[2] An analogous situation exists for isopropyl alcohol.[3]

WATER

It is sometimes forgotten that water is a very important solvent used in the flavoring industry. It is necessary that care be exercised in the selection of the water used as a component of flavor essences, extracts, emulsions or pastes. Such water must be of the highest sanitary quality; it must be perfectly clear and free of suspended matter and color; it must not contain excessive amounts of organic matter or minerals which may have a deleterious action on the flavor or which may cause the development of unpleasant tastes and objectionable precipitates in the finished product; and if the flavor is to be used for beverages, the water used should not be alkaline. The importance of these factors cannot be over emphasized. For example, a water containing less than one part per million of hydrogen sulfide will have the rotten-egg odor characteristic of that substance and will tend to impart this bad odor to any product in which such water is used. It is probably best to use distilled water or demineralized water for such purposes. It is not appropriate in an article of this nature to discuss water purification processes. These are detailed by Nachod and Nordell.[4]

Water is the simplest and least expensive solvent used. When it is used for extracting flavor principles from dried materials, heat may have to be applied in order to increase the solubility of the material to be extracted as in the case of tea and coffee extracts. In the preparation of essences and extracts, water is generally added last and care should be taken to avoid the precipitation of the alcohol soluble flavor components by addition of too much water.

ETHYL ALCOHOL

Ethyl alcohol, as well known, is a colorless liquid with a pleasant odor and a burning taste. It forms a mixture with water having a constant minimum boiling point of 78.15° C.

which consists of 95.6 per cent of alcohol and 4.4 per cent of water. Ethyl alcohol is designated as *alcohol* in contradistinction to all other alcohols which must be specifically named. Anhydrous ethyl alcohol is termed absolute alcohol.

GOVERNMENTAL REGULATIONS

Stringent governmental regulations cover the manufacture, use, and sale of alcohol in all forms. Alcohol not for beverage purposes is tax free. However, such tax free alcohol is either used under direct governmental supervision or, after being completely or specially denatured so as to render it unfit for alcoholic beverage purposes, is used without direct supervision. The use of all alcohol, whether tax paid, tax free, or specially, or completely denatured, must be accounted for by the use of records. Only tax paid alcohol may be used for the production of flavoring extracts or essences used in foods. However, if the alcohol is to be used for the extraction of a flavoring material, from which extract the flavoring material is to be recovered free of alcohol, or if it is to be used in the manufacture of a flavoring material, say ethyl acetate, then a specially denatured alcohol can be used.

ALCOHOL—AN EXCELLENT SOLVENT

Alcohol holds a special, and possibly preeminent position as a solvent in the preparation of flavors. This is true for the following reasons: most flavor components are readily soluble in it; it lends itself to blending of various flavors; it acts as a flavor carrier; it permits the addition of a relatively large amount of water without deposition of the flavoring materials; and it has a preservative action. On the other hand ethyl alcohol has several disadvantages. Its high vapor pressure and low boiling point tend to create losses by evaporation. When it is used in flavors employed in making bakery products, candy or confectionery, the high temperature of the manufacturing processes tend to drive off the flavors more easily if alcohol is present, hence more flavor must be used than is really necessary. Another disadvantage of alcohol is that some of the permitted food colors are difficultly soluble or insoluble in it, consequently care must be exercised in selecting the dye to be used in a given flavor mixture.

In using ethyl alcohol for the preparation of extracts and essences, it should be remembered that alcohol is a volatile solvent, hence the process should be conducted in such a manner that losses of the solvent are kept to a minimum. A practical working knowledge of the use of ethyl alcohol entails knowing that mixtures of alcohol and water contract in volume and ability to reduce a known percentage of alcohol to another percentage as well as to calculate the percentage of alcohol in a prepared batch of flavor. These factors are discussed below.

REDUCTION TO GIVEN PERCENTAGE

When water and alcohol are mixed together, there is a rise in temperature and a contraction in volume. In small-scale operations this is customarily neglected but in larger operations the apparent loss is appreciable and must be taken into consideration. Thus, if 90 gallons of water is mixed with 110 gallons of alcohol, the total volume will be 192.5 gallons of the mixture instead of 200 gallons, an apparent loss of 7.5 gallons.

To reduce an alcohol solution to a given percentage Pile's rule may be followed: Add to as many volumes of the given alcohol solution as indicated by the percentage desired, sufficient water to make the number of volumes of the mixture equal to the percentage of the original alcohol solution. Alcohol percentage is always understood to be the proportion of absolute alcohol present, unless otherwise specified. Thus, if one desires to make a 45 per cent alcohol solution from a 95 per cent alcohol solution, take 45 volumes of 95 per cent alcohol and dilute with sufficient water to make a total of 95 volumes of the mixture. For instance, to 45 ml. of 95 per cent alcohol, add water to make the volume 95 ml. after mixing. This is a 45 per cent alcohol solution.

ALCOHOL PERCENTAGE

Reduce all the volumes given in a formula to a common volume unit, that is, to milliliters, liters, or ounces, pints, quarts and gallons. Multiply the volume of alcohol by its percentage and divide the product by the total volume of the mixture. The quotient will be the percentage of alcohol in the final mixture. For example:

Compound flavoring ester	240 ml.
Alcohol, 95 per cent	4800 ml.
Water	2880 ml.
Total	7920 ml.

$$\text{Then } \frac{4880 \times 0.95}{7920} = 0.60$$

That is, the final mixture contains 60 per cent alcohol.

In a subsequent article the use of

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glycerol, propylene glycol, triacetin, odorless and tasteless vegetable oils and other flavor solvents will be considered.

LITERATURE CITED

[1] R. Harold Morgan, *Beverage Manufacture*. Chemical Publishing, New York, 1938.

[2] Federal Security Agency, *Food, Drug Admin.* FD&C Act Trade Correspondence TC-402, May 14, 1943.

[3] Federal Security Agency, *Food, Drug Admin.* FD&C Act Trade Correspondence TC-162, March 14, 1940.

[4] F. C. Nachod and E. Nordell in Morris B. Jacobs, ed. *Chemistry and Technology of Food and Food Products*. Interscience, New York, 1944.

Flavored Notes

It is relatively common practice to replace a given spice by an equivalent amount of its essential oil in the production of certain food products. Thus for example 10 ml. of oil of sage or of oil of thyme represent 1 pound, respectively, of either sage or thyme. When, however, such essential oils are used as ingredients in a food formulation, it is inappropriate to use the designation "spice flavoring," since such a term would imply that the spice itself, rather than the oil was used for the flavoring. It is better to use the term "flavored with oil of sage" or whatever essential oil was used.

* * *

Sunset yellow FCF, tartrazine, naphthol yellow S, ponceau SX, amaranth, ponceau 3R, and indigotine are only slightly soluble in 95 per cent alcohol. With increase in water content, their solubility increases but even in 50 per cent alcohol, indigotine, ponceau 3R, and amaranth are soluble only to the extent of about ½ ounce per gallon. These solubilities should be considered when any of these dyes are used to color flavors containing ethyl alcohol.

* * *

Bitters are generally prepared by macerating certain mixtures of natural flavoring materials with equivalent amounts of water and ethyl alcohol. Probably the most important of this group of flavors are Angostura, hops, orange, English, and hamburg. Essences of these bitters can be prepared by the addition of compatible essential oils to the extracts prepared by maceration.

* * *

With the end of the war, the shortages that have been so sorely felt in the flavor field will undoubtedly be relieved. Unquestionably there will be a return to some of the flavor formulations formerly used. There will, however, be a definite place for many of the new developments of the past war years—*M.B.J.*

Blanched Blueberries

Loss of flavor and development of woody texture in frozen blueberries can be corrected by blanching. Steam-blanched berries packed in dry sugar at a 5 to 1 ratio are reported to have excellent aroma and flavor, with a good degree of firmness and no toughness in the skins. Similar berries packed in dry sugar or in saturated syrup before freezing had a good appearance but inferior flavor and aroma, with a tough, woody structure.

While in every case sugar packing before freezing gave better flavor than products packed without it, citric acid did not improve flavor, color or texture of frozen berries that had not been blanched.

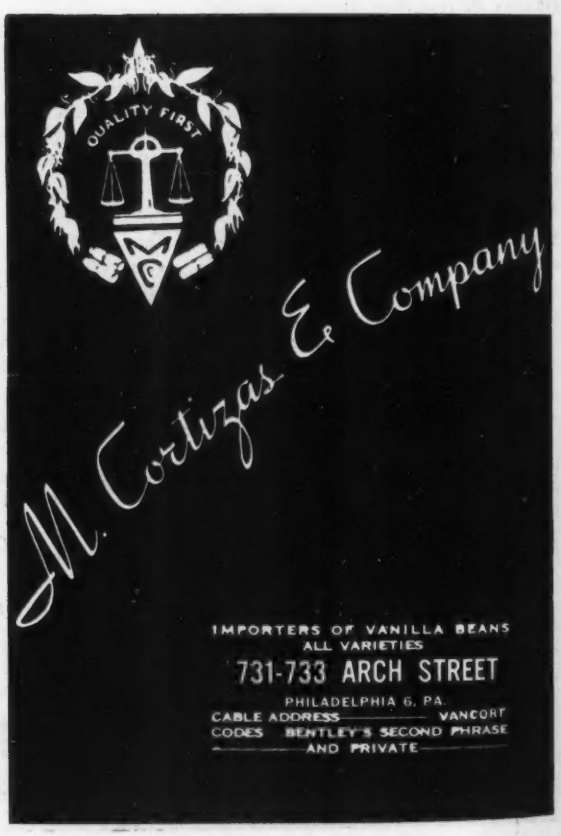
Passing the berries through a steam chamber on shallow trays of wire screening, so that live steam could reach them from both top and bottom, gave good results. One minute was generally sufficient, but the time of blanching can be increased to 2 or 3 minutes for tough berries. The development of the wood texture is attributed to an enzyme which can be inactivated by heat.

Small lots of berries immersed in boiling 74 per cent sugar syrup for 15 to 20 seconds, then drained for one minute, were excellent both in flavor and texture.

Vanilla Shipments

The new crop of whole vanilla beans and cuts from Mexico received so far totals about 150,000 lbs. according to data compiled by M. Cortizas & Co., Philadelphia, Pa. The 1946 crops, on account of droughts, is not expected to be larger, reports A. Trueba one of the well-known vanilla experts from Mexico who arrived in the United States by airplane late in August. For that reason prices are likely to be firm for a long time.

As to Bourbon beans the situation is not particularly encouraging. Since last December seven boats carrying vanilla beans from Madagascar have arrived. The French gave the United States a quota of 700 tons from July 1, 1944, to July 1, 1946, and of this amount 450 tons have already been taken, leaving a balance of 250 tons to last until next July. The Guadaloupe crop of vanilla beans is all in and is reported to be of fair size.



Survey of Recent Cosmetic Patents

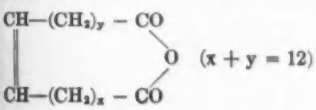
Registered Agent before the U. S. Patent Office discusses U. S. and foreign patents . . . Any inquiries relating to patents and trade marks will be met with prompt attention . . .

by I. J. FELLNER, PH.D.

Amber Perfume. L. Givaudan & Cie., S.A., Vernier, Switzerland. *Swiss 224,961, April 16, 1943.* 5, 15-dioxypalmitic acid is converted into a mixture of unsaturated mono-oxycarbonic acids of the general formula

$$HO{\cdot}CH_2{\cdot}(CH_2)_x{\cdot}CH{:}CH{\cdot}(CH_2)_y{\cdot}COOH \quad (x + y = 12)$$

which is esterified with 1-chloropropane-diol-2, 3. The so produced mixture, added with a solution of sodium in glycerine, is then subjected to vacuum distillation at 200 deg. C. for 10 hours, glycerine being added from time to time. The resulting lactone mixture has the odor of amber, a boiling point of between 118 to 120 deg. C. and the following configuration:



Fingernail Drier. Nu Tone Inc., New York, N. Y. *U. S. 2,374,472, April 24, 1945.* A mound-like housing is provided with an electric lamp serving as a source of heat. Spaced from the lamp, the housing carries a hand rest adapted to support the palm of the hand, and has also an opening substantially surrounding said hand rest. Through this opening the fingers of the hand may pass to expose the nails to heat radiated from the electric lamp.

Water Repellent Agent. J. J. Cohen and J. Heller, New York, N. Y. *U. S. 2,375,348, May 8, 1945.* The composition contains a water emulsion resulting from the mixture of Japan wax, aluminiumstearate, uncooked and unpolymerized Chinawood oil, water soluble A-stage urea formaldehyde resin, ammonium hydroxide and a hydrocarbon solvent. The ammoniacal base reacts with free fatty acids in said mixture to form a thermo labile-soap acting as the active emulsifier for the entire mixture.

Olive Flavor. Sidney Musher Corp., New York, N. Y. *Canadian 427,143, May 1, 1945.* The flavor in an olive infused glyceride and olive oil may be enhanced by adding thereto benzaldehyde in an amount of less than 75 parts per million.

Antioxidant. To Claude R. Wickard as Secretary of Agriculture of U. S. A. *U. S. 2,368,435, Jan. 30, 1945.* Oxidative rancidity of animal and vegetable fats and oils is inhibited by incorporating therewith the monoester of a fatty acid containing 2 to 18 carbon atoms per molecule and a compound of the ascorbic acid series.

Creams. I. G. Farbenindustrie, A. G., Frankfort on Main, Germany. *Belgian 444,254, Jan. 23, 1942.* The compounds contain esters of dicarbonic acids with glycols.

Dental Preparation. Gesellschaft fuer Chemische Industrie, Basel, Switzerland. *Swiss 225,260, April 16, 1943.* The preparation is compounded of two parts of the sodium salt of sulfonated μ – undecylbenzimidazol and 98 parts of a soap free conventional dental paste to which salts of sulfonated fatty acids may be added.

Detergent Composition. Allied Chemical & Dye Corp., New York, N. Y. *U. S. 2,374,187, April 24, 1945.* A detergent composition in cake form adapted for toilet purposes and possessing cleansing and sudsing properties similar to ordinary soap, comprises a solid neutral, water soluble salt of an alkyl sulfoacetate having an open-chain hydrocarbon group of 12 to 14 carbon atoms, in intimate mixture with a solid, water soluble amido body such as urea, monobutyl- or dibutyl urea, phenyl urea, acetyl methyl urea, ethyl carbamate, succinamide, phtalimide, caffeine, dicyandiamide, and guanidine carbonate, the amount of the alkyl sulfoacetate salt not exceeding 1/10 of the weight of the amido body.

Refining Oils. Refining Unincorporated, Houston, Texas. *U. S. 2,374,924, May 1, 1945.* Animal and vegetable oils are refined by neutralizing their free fatty acids in the presence of an oil solvent to form a mixture containing oil, said solvent and the soap stock then vaporizing volatile substances including the solvent and separating the soap stock from the oil.

Waxlike Composition. The Ensign Bickford Corp., Simsbury, Conn. *U. S. 2,374,617, April 24, 1945.* A hard, moisture proof, high melting point, fused, homogeneous wax type preparation of the following composition:

Hydrogenated castor oil	30-60%
Ester gum	30-60%
Petrolatum wax	5-25%
Petroleum asphalt	2-25%

An *IMPORTANT* Announcement

Regarding

LANOLIN

As "America's Largest Supplier of Lanolin," we welcome the revocation of WFO-76 because, once again, you may purchase *any* quantity of Lanolin and from *any* supplier. It means once again, a return to the principle of purchases on the basis of *value* received, instead of volume received. It means once again, a return to competitive selling . . . the principle of *quality*—not quantity.

BENEFITS OF WAR RESEARCH

But most important of all, the release of Lanolin means that the Drug, Cosmetic and Allied Industries may now enjoy the fruitful results of several years of Lanolin refining research made necessary by war-time urgency. Malmstrom is proud of its contribution to this research . . . research which brought forward a greatly improved Lanolin . . . a product of greater stability and purity than any grade heretofore available.

We were not able to embody these qualities in the Lanolin sold during the last two years because of limitations in processing time as well as restrictions under the allocation orders and scarcity of wool fat itself. However, within the next few weeks we expect that this greatly improved grade of Malmstrom's Nimco Brand Lanolin will be available in quantity.

If you are interested in product improvement through the use of Lanolin, we urge that you send for testing samples immediately.

N. I. MALMSTROM & CO.

America's Largest Suppliers of { **LANOLIN** • Anhydrous U.S.P. • Hydrous U.S.P. • Absorption Base • Technical
DEGRAS • Neutral and Common • Wool Greases

147 LOMBARDY STREET • BROOKLYN, NEW YORK

by ARNOLD KRUCKMAN

MOST of the materials and products required by the cosmetics, toiletries and flavors industries have been released from war restrictions. In theory they should be free as the wind; in practice it will be weeks, in some cases months, before the restrictions will be fully effective. The delays will inevitably be due to the necessity of adjustments. New parts, new equipment, new machinery, must be procured by some manufacturers; raw materials must be fabricated; readjustments in sections of the national economy that superficially have no relation to this industry, will, however, be a ball and chain on this industry.

It is wise to understand that the world has never had an economy so complicated and so delicately balanced as was our economy before this war; and that it will take time to bring it back to the smooth operation that functioned in the 1930s. It will take even longer, if some of the social experiments in progress in Europe, and looming up both here and in Asia, develop as their proponents hope. Without much doubt it seems certain Government cartels will control the foreign trade channels of Europe, and, apparently, Asia.

Britain has gone socialistic. Russia and parts of Europe are leaning to communism, and Asia is expected to be collective in some form approaching both the British and Russian formulae. This Government is expected to become more liberal. The Full Employment Bill, which is pending, is designed to give the Government authority to use resources of the nation, both private and public. An understanding of this situation is intimately important to your industry because Secretary Byrnes will formulate the import and export policies of the Department of State, and he will unquestionably have a preponderant influence on all internal policies, including price control.

Increased costs are to be absorbed by wholesalers and retailers; the formula was approved and announced by the Office of Economic Stability before the adaptation was made realistic by OPA. The principle is manifest in the plan which fixes prices broadly on the 1942 level, with a lee-way of 10 per cent to 15 per cent increase, according to the specific need. Prices for new products, or prices on products by newcomers, are to be fixed in line with comparable products; or, the ceiling may be set by current costs, plus the average profit margin for 1936-39; or, add to 1941 production cost current increases in materials, overhead, wages, plus the profit average, which must be approved by OPA.

PRICING AUTOMOBILES

The pricing formula, which is considered the most revealing, is the plan provided for pricing of new automobiles. One form starts with the 1941 base cost, plus per unit increase in wages and materials cost, which is called the adjusted cost; to this is added the individual profit margin in 1936-39, or the industry average of profit in 1936-39. Whichever is highest may be used as the ceiling. If this ceiling is lower than the 1942 ceiling, then the 1942 price, being higher, stands. It may be easier to grasp the principle of the price ceiling philosophy by considering that the general price level is to be held down, but, when justified in some lines, there may be increases. In some instances, OPA permits adjustable pricing, which means, when OPA has approved, prices may be left open, to be fixed, with OPA approval, when deliveries are made.

You may get the ultimate thought in the OPA mind when you understand that the White House is convinced that a stiff price control is the last bulwark against inflation, and that inflation is now the major fear behind every action or policy. OPA legally functions until the last day of next June. Many sober thinkers here believe it will be continued after next June.

EXPORT PROBLEMS

The whole problem of export has gripped this Government as no Administration ever before has been kindled by the idea of foreign trade. The pressure comes from industry and business itself. The general belief is that we can absorb all consumer goods we are able to produce, but that we have an excess capacity of approximately 50 per cent more than we can absorb in facilities for production of capital goods. The trend may be seen in Secretary Byrnes' statement that we expect lend-lease clients to repay to some extent in kind, if they cannot pay in cash.

This means, to your industry, that France, and other lend-lease customers, may pay us in essential oils, in perfumes, and in other commodities for which they are commercially distinguished, and which may affect the

has an enviable reputation, having made a marked contribution to the success of so many perfumes, colognes and toiletries which contain alcohol.

It really removes the sharpness of alcohol odor and lets the fragrance come through.

If you aren't already using it, write us for a sample of Tonkaire and directions for use. You'll really be amazed at the results!

COMPAGNIE PARENTO

INCORPORATED

CROTON-ON-HUDSON, NEW YORK

NEW YORK • CHICAGO • DETROIT • LOS ANGELES • SAN FRANCISCO • SEATTLE
PHILADELPHIA • TORONTO • MONTREAL • LONDON, ENGLAND

business of your industry. You get the significance of this idea when you learn that we have lend-leased a gross total of $42,000,000,000, and have had a gross total reverse lend-lease of $5,000,000,000, which leaves a gap of $37,000,000,000 which might be filled with all kinds of imports, some of which may be competitive with our own products.

FRENCH PERFUME IMPORTS

It is expected large volumes of French perfumes and toiletries will flow into America as the result of the deal whereby the French Government gives any member of the U. S. armed forces passing through France a subsidy of $17 a month in French francs, and lower prices for purchases shipped directly back to America. Curiously enough, it also is believed here the Chinese will surprisingly augment their purchases of products made by your industry. Hitherto some of these purchases have been made in Britain. It is reported, here, the occupation of Hong Kong by the British has caused the Chinese to launch a massive boycott against all things British. The Russians, on the other hand, by their surrender of Manchuria, have vastly solidified their intangible goodwill relations with the Chinese.

We also have word that Canada has begun the production of materials for cosmetics and toiletries and flavors for export, and that a substantial part of the new industry stems from American enterprise. A trade agreement between Canada and France is expected to bring into Canada essential oils as well as other materials, and French perfumes.

Early in August the Department of State is reported to have concluded a trade agreement with Chile, under which Chile grants the U. S. exporter reductions on cosmetics, but apparently no one thought to clarify the exchange wrinkle which has practically arrested export of finished toiletries and cosmetics from the United States into Chile.

And from Asia comes words that Tibet had 40 pounds of natural musk, the rare ingredient which has been so very scarce, which it wished to send to the U. S. by air routes in two 20-pound packages; but for some reason FEA failed to facilitate the transaction. The material was much needed, according to word in Washington, for the impending Christmas trade. The natural musk has gone to France. From Brazil comes word there is approximately 50 tons of bois de rose oil in the Amazon country, but it cannot be brought out because the WPB refused to give clearance under M-63. The Rubber Administration was ready to facilitate the shipment of the oil. It is anticipated it will be easier to obtain the Brazilian essential oil when the rubber starts to come here from Java, which is more imminent each day. The thought is that the Brazilians will be more ready to release the oil when rubber comes into the United States from Asia.

IMPORTS FROM ITALY

FEA recently announced procedures for importing goods from Italy. The U. S. Commercial Company acts on behalf of the Allied Commission in the sale and distribution to the United States of all Italian products, and the U. S. Commercial Company will act in a similar capacity when exports are taken over by the Italian Government cartel, the Instituto Nazionale per il Commercio Estero. All transactions must be approved by the Allied Commission and the Italian Government. The USCC usually deals with American importers designated by the Italian cartel. When the cartel does not designate specific importers, the merchandise is offered to the trade at large. Orders must be placed by Americans on FEA Form 519, and submitted to U. S. Commercial Company, FEA, Washington 25, D. C. The Form may be obtained by applying to the FEA at 61 Broadway, N. Y., or to the FEA, Temporary "T" Building, Washington 25, D. C.

American products, based on chemicals, are in process of exploitation in Latin America, by means of a manual, distributed widely throughout Central and South America by the Drugs and Pharmaceutical Unit of the Department of Commerce, whose Chief, T. W. Delehanty, and Assistant Chief, Lester A. Barber, are widely known to the toiletries and cosmetic industry of the United States. It has been pointed out by the Department that our chief competitors, now, in Latin America are Britain, Canada, Switzerland, and Argentine. It is interesting also to learn that Italy recently sent 2½ metric tons of deturpinated (turpineless) lemon oil, 30 per cent and 38 per cent citral, to Brazil. Apparently the Italians still have 12½ metric tons which might be shipped to the United States on request. There also is reported to be available some Italian and French bergamot oil.

TARIFFS AFFECT BUSINESS

From Brazil, via Washington sources, also comes the word that American firms, which have developed a notable increase in business down there in compounding toiletries and cosmetics during the war, are threatened with elimination by competition which is protected by a high tariff imposed by the Brazilian Government. It is said that Coty's, with 300 products, increased its Chilean business 1,000 per cent the past five years.

OPA RPS 51, Amendment 7, August 9, announced new prices and new definitions, established for cocoa nibs from cocoa beans, used in cosmetics, grown in Africa, Brazil, Costa Rica, Dominican Republic, Ecuador, Haiti, British West Indies, Panama, Venezuela; details may be secured by applying to Imported Foods Section, OPA, Washington, D. C.

Guatemala reports the only essential oils produced or exported in commercial quantities in 1944 were oil of lemon grass and oil of citronella. While oil of lemon grass was substantially less than in 1943, the total of both was reported to be about the same in 1944 as it was in 1943. The grass and citronella crop was reported to be 247,460 quintals, a quintal being approximately 101.50 pounds. The oil yield is about 1 per cent. Practically all the oil was exported to the U. S. Guatemala is now developing production of Japanese peppermint, and will start production of Japanese peppermint oil crystals, menthol. The Government of Guatemala is making every effort to encourage and assist the industry.

LANOLIN ORDER REVOKED

Probably the most sweeping effect of all the many revocations of Orders by WPB and the new Production and Marketing Administration — substitute name for the WFA—is the revocation of WFO 76, which takes all control off the supply of lanolin. If

you can find it, and if you wish to pay the price, there is no legal reason why you may not buy as much as you want. The word here is that the price has gone from 20c a pound to 35c. It is temporarily scarce because the cosmetic industry is not expected to be able to use what the Army and Navy have used.

CASTOR OIL SHORTAGE

Castor oil is still short, and is expected to continue to be in short supply for an indefinite period. The demand during August was over twice as much as the supply. The scarcity stems principally from the failure of the Brazilian crop, and the market conditions in Brazil. When the Japanese folded up, the Army found itself with a sizable surplus in one gallon cans. The CCC and the Army both immediately offered the surplus by writing to firms of record in the cosmetic industry. It is not known how they responded. There was some doubt whether they could handle the material coming in one gallon cans. It was assumed, however, that under the existing conditions of scarcity, the industry would adapt its customs and habits to the one gallon can difficulty. There is no indication when the supply may be increased.

GLYCERINE ORDER TERMINATED

The glycerine inventory order, WFO 134, was terminated on August 25, making this material free. The peppermint control, WFO 81, was revoked the end of August; the set-up box and folding box orders, L-239 and M-378, were revoked on August 22, making the supply of these containers free of any legal restraint. The controls on fiber containers, L-317, were revoked about the same time. L-103-b, the control on glass containers, is expected to be wiped out entirely within a week or two, possibly before this is published; but closures are expected to remain under rather rigid control, except for plastics.

LEAD AND TIN SCARCE

Lead and tin are still very scarce, and there is no immediate prospect of relief. Tin is expected to remain tight until the mines and productive facilities in the Malaya Peninsula, and in other Asiatic areas, are restored to proper conditions, and until shipping facilities improve. Salvaging of tin is expected to continue indefinitely. Citric acid has been completely freed from the controls under M-300. Cellophane is free; so are the glycols. Talc was freed on August 20, as was laboratory equipment.

ISOPROPYL ALCOHOL RELEASED

Isopropyl alcohol was entirely released on August 31. Distilled spirits, under M-69, was freed on August 31; but industrial alcohol is still under the control of Schedule 71, M-300. It is expected it will be on the books for a month or more. Industrial alcohol, and the various elements connected with it, are involved with rubber, molasses, sugar, and with grain, and other bases; the requirements for various needs are so complicated that it is difficult to make clear the considerations that delay the release of alcohol.

An average of 56,000,000 bushels of corn is used in alcohol, normally. The present allocation of the grain is less than 3,000,000 bushels, for which reason the distilleries were obliged to go on a holiday. Earlier in the year the allocations were as low as 2,000,000 bushels. The toiletries and cosmetic industry received 150 per cent of its base year allocation in August; the current allocation is not expected to be less, and, probably, more. There seems no remote reason to fear a lack of alcohol for the holiday season productions.

CONSTRUCTION ORDER REVOKED

If you wish to do any building, you are free to do so now because L-41, the construction order, has been revoked. Fats and oils are still scarce, and are expected to remain scarce until well into next year. OPA has issued a new order controlling prices of coconut and palm kernel oils, placing a 1.5c per pound differential on carlots, to be added to OPA bulk prices. But no real increase in supply is promised until more shipping is available, and until the sources in West Africa and the Netherlands East Indies are able to furnish a greater supply. A third of all our oils comes from Far Eastern sources. The lack of sacks is a great trouble in transporting copra. Finally, Europe is still in desperate need of fats and oils.

J. B. Hutson, Undersecretary of Agriculture, is the new Administrator of the Production and Marketing Administration, successor to WFA. C. W. Kitchen is the Deputy Administrator who has more direct charge of the work connected with your industry. Essential oils, which continue in charge of A. L. Kalish, have been placed in the Special Commodities Branch, of which M. L. Brenner, a new man from Texas, is the head in place of H. C. Albin. Mr. Albin, however, has not yet surrendered his job, and is disputing the appointment. For the moment the branch actually has two heads. Fats and Oils Branch has been placed in charge of W. H. Jasspon.

WPB made a survey of 62 major peacetime industries and found they expect immediate production slightly over 100 per cent of the 1939-41 base, in dollars, and slightly under 100 per cent in employment. Various sections of the country report a total of more than 600,000 jobs are going begging, and the WMC digest reveals that less than 500,000 of the 2,000,000 who have been discharged seek jobs. The tendency everywhere is for those out of war work to take vacations. WMC reports approximately 56,000,000 are working, with a national income of $145,000,000,000. The CED has requested the Government to solve the lack of workers in some regions by providing funds to move the workless to the places where the jobs are waiting. The CIO protests the Government is successfully reconverting business profitably, but has not reconverted workers to jobs. The Army continues to take 50,000 monthly, and the Navy from 12,000 to 13,000, between 18 and 25 years old. It is now legal to raise wages or salaries without authority from Government, if the increase is not used to raise prices.

VETERANS RATE SENIORITY

A Brooklyn Federal Court has ruled that a veteran takes absolute precedence over any non-veteran in seniority claim for a job. Unless the Supreme Court upsets this ruling it means that a veteran is entitled to seniority above the employee who remained on the job, but did not go to war. It is expected this will raise an acute issue between the unions and the veterans.

NEW PRODUCTS AND PROCESSES

Ammonium Thioglycolate

Commercial production of solutions of ammonium thioglycolate in concentrations of 40-55 per cent has been announced by the Special Chemicals Division of Winthrop Chemical Co., Inc., Rensselaer, N. Y., which has been producing thioglycolate acid for the beauty trade for some time. Simultaneously, a new low schedule of prices of thioglycolate was revealed.

Synthetic Gum Benzoin

The Bendix Chemical Corp. is producing a synthetic gum benzoin on a commercial scale. The product is said to have properties similar to natural styrax benzoin of the Siam type. A patent application, covering formula and process, has been filed.

The product is said to have a sweet-balsamic odor, a sweet taste, and amber color, contain no impurities, and be completely soluble in alcohol, or in equal parts of methyl carbitol.

McKesson & Robbins, Inc., chemical division, is the distributor of the new product.

Glass Insulation

Pittsburgh Corning Corp., has announced several improvements in new cellular glass insulation which it manufactures under the name "Foamglas."

The number of cells per cu. ft. has been doubled, to 10,000,000. The present product is brown instead of black.

The product is fire-proof, waterproof and vermin-proof. Its makers state that it is not subject to deterioration.

New Bag Dumper

A new bag dumper for lifting and emptying heavy bags has been announced by ASCO Manufacturing Co. It operates on a ¼-h.p. motor and handles bags up to 350 pounds.

The dumper, designed to eliminate waste and accidents, may be wheeled about as needed. An automatic shut-off switch stops the motor at top and bottom positions of the lift. As an added safety measure, a special clutch arrangement disengages the motor if downward return of the chute is obstructed. The upward lift takes 10 seconds, with 8 seconds to lower.

Ritchie Bag Dumper

An adjustable height chute at front fits narrow openings and funnels the bags' contents into a vat or machine. Tow spikes catch and hold the bag for dumping. The chute will handle a bag 24 inches wide.

New Catalogs

Fairmont Chemical Co., Inc., has brought out its new price catalog on perfume and flavor chemicals. Copies may be obtained free.

A leaflet, "Jobs For the War Disabled," has recently been issued by the American Veterans Association, and is available to anyone desiring copies. These copies may be obtained, free of charge, by writing to American Veterans Association, Inc., 271 Madison Ave., New York, N. Y.

A new catalog has just been released by the Lonn Manufacturing Co. describing its complete line of Lonn Air Saver Blow Guns, Air Saver Spray Guns and Water Savers, with physical specifications and tips on where and how to use them.

Standard Synthetics, Inc., New York, N. Y., has issued a new catalog. Copies may be obtained without cost.

Book Reviews

INDUSTRIAL OIL AND FAT PRODUCTS, Alton E. Bailey. 735 pages, illustrated and indexed. Interscience Publishers, Inc. Price $10.00. Published 1945.

This book describes the fatty products of commerce and the processes by which they are derived from crude fats and oils. As an introduction, the reader is given an outline of the composition and the chemical and physical behavior of these materials.

Another section is devoted to the sources, utilization and classification of fats and oils as present in plant and animal life. This covers a discussion of oils and fats for edible purposes; lard compounds, vegetable shortening, butter, margarine, etc.

Another section covers oil and fat derivatives which possess the ability to influence surface action, as in soaps and other surface-action materials.

Paints, varnishes and other decorative and protective coatings, a group which comprises one of the three major fields in the use of oil and fat, receives considerable attention.

The last portion of this book is devoted to oil and fat technology, covering such subjects as extraction, refining and bleaching, deodorizing, hydrogenation, fractionation, fat splitting and esterification, polymerization and isomerization, solidification, homogenization and emulsification.

Hyalin

A *permanent* replacement product for **Lanolin**

HYALIN is a powerful concentrated water-in-oil emulsifier. It has the tackiness and the emollient properties of Lanolin, for which it can be substituted, either wholly or in part, without any other change in formulation. It is freely available in all quantities.

HYALIN is more than a product that was created to tide over a war-born emergency: it has certain definite advantages that entitle it to a permanent place in cosmetic formulations.

HYALIN is very stable in odor as well as in color. Its straw-like odor will not eventually develop a sheepy, goaty character. Its color will not ultimately darken, to cause discoloration in the products in which it is used.

Due to its powerful emulsifying properties, **HYALIN** can be used in smaller percentages than Lanolin in new formulations. It is particularly suitable for lipstick as it is in itself a good vehicle for bromoacid and pigments.

HYALIN is well worth examining, not only for its immediate use, but equally so for its future use. Working samples will gladly be sent upon request.

VAN DYK & COMPANY
INCORPORATED 1904

Manufacturers of Perfumery and Cosmetic Raw Material since 1901.
Offices, Factory and Laboratories: Main & William Streets, Belleville 9, New Jersey.
Western Office: 1282 Sunset Boulevard, Los Angeles.

AMONG OUR FRIENDS

▸ Dr. Henri Coutinho, president of the Perfumers' Manufacturing Corp., New York, N. Y., whose research work on colloid chemistry and whose contributions to the Scientific Section of the Toilet Goods Assn. on molecular constitution and bromo-acid solubility have won for him an enviable reputation, was a recent visitor in Mexico. The trip there and back was made by airplane and while most of his time was spent in Mexico City and its environs he had ample opportunity in the three weeks he was there to get a good picture of business and social conditions in the country. He was much impressed with the progress made by the country in the last few years and reports that it is probably more prosperous now than it has ever been. As a result of this he was most optimistic as to the development of trade relations between Mexico and the United States on a much broader scale than ever before. Last April, it will be recalled, Dr. Coutinho visited Cuba and Porto Rico for the purpose of buying alcohol; and was fortunate in getting it before the limitation order went into effect.

Dr. Henri Coutinho

▸ Lieut. Arthur Goldman, who obtained a leave of absence from Standard Synthetics, Inc., New York, N. Y., in 1941 to join the Navy, was recently married to Capt. Mary Beard of the Army Nurse Corps. After 24 months of service in the South and Central Pacific area he came to the United States on furlough, took a trip to Georgia and then returned to the Pacific area.

▸ Mrs. Sally Hansen, founder and president of the House of Hollywood, Los Angeles, Calif., and New York, N. Y., left New York August 15 for the Pacific Coast where she expects to remain at the Hollywood offices for several weeks before returning to New York. Mrs. Hansen was highly gratified with the progress made by the company and is optimistic over the outlook for the development of the industry in the coming years.

▸ Roscoe Edlund has been elected president of the Trade Association Executives of New York City. Mr. Edlund is manager of the Association of American Soap and Glycerine Producers, Inc.

▸ Madame Helena Rubinstein sailed for Europe on Monday, August 13, via SS Santa Cecelia. She was accompanied by her son, Horace Titus. She will go directly to France, where she has extensive business interests, and will later visit England. She plans to proceed with new and interesting projects which she started before the outbreak of the war. She has not announced when she expects to return to this country.

Helena Rubinstein

▸ Candido Rodriguez, General Manager of Pando & Co., New York, N. Y., distributors of Myrurgia Perfumes, has just returned from a business trip to Havana, Cuba, and Mexico City. He states that the luxury trade, including imported Spanish perfumes, is flourishing in these two cities. The large number of American visitors to Havana and Mexico City has introduced Myrurgia widely throughout America.

▸ Elmer B. Tysdal has become production manager of Pharma-Craft Corp., Chicago, Ill. He was for two years head of the Drugs and Cosmetics Branch of the War Production Board.

▸ D. H. Sterling has been promoted to sales manager of Hudnut Sales Co., Inc., New York, N. Y. He has been assistant sales manager since February of this year when he came to Richard Hudnut after 16 years in the same capacity with Elizabeth Arden.

▸ Miss Jessica Canne has been made sales promotion manager of Hudnut Sales Co., Inc., New York, N. Y. She has been with Richard Hudnut for the past six years. Before that time she was associated with the *Ladies' Home Journal.*

▸ Edward W. Higgins has been selected to fill the position of comptroller for Merck & Co., Inc., Rahway, N. J.

His duty will be to assist the Board of Directors and the management of the company by coordinating controls, and by analyzing existing and projected operations.

Mr. Higgins is a graduate of Wabash College, and received the degree of Master of Business Administration from Harvard University. Before coming to Merck he was with White Motor Co., The Baldwin Locomotive Works, and Kidder, Peabody & Co. More recently he has been engaged in management consulting work.

▸ Mona Manet, formerly director of cosmetics of Lucien Lelong, has joined the writing staff of a new publication as beauty editor and make-up stylist.

▸ Frank Bergmann, who has been associated with the Oxzyn Co. for 24 years left that concern August 15 to join the organization of Harry Broder and Associates, New York, N. Y. This concern has enjoyed a steady and wholesome growth since it was organized to supply plastic containers. With the release of metals the company immediately went into production on metal lipstick containers in its new quarters

Frank Bergmann

Is your product lifeless?

depend on du pont ASTROTONE BR to brighten it

REG. U. S. PAT. OFF.

THE ROUNDING, full blending, and fixative values of Du Pont Astrotone* BR will give new life to your product. Astrotone BR is versatile . . . wholly soluble in and compatible with all perfume materials. It brings exquisite harmony to fine perfumes, softens harsh edges and gives subtlety in lower priced bouquets.

*A true synthetic, product of Du Pont research, Astrotone BR belongs to the family of compounds of which musk tonquin is a member. It should not be confused with the chemically different nitro musks.

du pont aromatics

DU PONT

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BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

E. I. DU PONT DE NEMOURS & CO. (INC.)

Organic Chemicals Department, Aromatics Section, Wilmington 98, Del.

Branch Offices: Boston, Charlotte, Chicago, New York, Philadelphia, Providence, San Francisco.

at 167 W. 64th St., New York, N. Y. It is therefore offering both plastic and metal containers or a combination of both. In his new position Mr. Bergmann who is well known throughout the trade will have ample opportunity to make use of his broad experience in the cosmetic business.

▸ Robert F. Eldrick has been appointed manager of product testing and market analysis, the Pepsodent division of Lever Brothers Co., Cambridge, Mass.

Mr. Eldrick was formerly marketing research director at Ruthrauff and Ryan, Blackett-Sample Hummert and Quaker Oats Co.

▸ Max Rocherolle, in a recent interview in Montreal, Canada, stated that French chemists had hidden all the ingredients for their perfumes before the arrival of the Germans and have now got them back into production. Throughout the occupation chemists had developed other new products almost under the noses of the Germans.

Mr. Rocherolle arrived in Montreal from Washington where he has been on a mission for the French Government, a mission the details of which he did not feel free to discuss. First, he said, he would report to his Government.

He had been a prisoner of the Germans for almost two years, and had lost 70 pounds because of insufficient and poor food. During the imprisonment very little in the way of supplies was to be had, and if it had not been for the Red Cross parcels the majority of the camp would have died.

▸ N. T. Gorchoff and W. Marvin Bryant, Jr., have started a new firm under the name Bubble-O-Products, to manufacture chemical specialties, cosmetics and kindred items. Offices and plant are located at 1501 Main St., Lynchburg, Va.

▸ George S. McMillan has been elected secretary of Bristol-Myers Co., New York, N. Y. Mr. McMillan has been director of publicity of the company for the past one and one-half years.

▸ James A. Coulter, vice-president and a member of the board of Colgate-Palmolive-Peet Co., Jersey City, N. J., has retired. He had been with the company since 1923. As yet his place has not been filled.

▸ Gerald Smith has joined American Home Products Corp., New York, N. Y., as assistant to Walter Silbersack, executive vice-president and general manager.

▸ Lawrence W. Bamberger, PFC, Coast Artillery Corps, who was employed by George Lueders & Co., Inc., New York, N. Y., before entering the armed forces has been awarded the Soldier's Medal for heroic achievement.

While near St. Dizier, France, he observed that an airplane had crashed nearby. He and two companions rushed to the scene and removed the pilot and navigator, ignoring the danger of fire and explosion.

▸ Arthur Noto has been appointed assistant sales manager of the Richard Hudnut Sales Co., Inc., New York, N. Y. He has been with the company for 14 months as assistant to C. A. Pennock, president and G. S. Fowler, general sales manager. For five years previously, Mr. Noto was connected with the Sales Department of William R. Warner & Co., in the New York area. Before that he spent five years with Parke-Davis & Co.

Arthur Noto

▸ Ben Hayms has been appointed chief chemist and production manager for the Boston Drug & Chemical Co., Inc., Boston, Mass., and its toiletries division.

Mr. Hayms studied at Pratt Institute and the Polytechnic Institute of Brooklyn, N. Y., receiving his B. S. and M. S. in the latter.

Prior to joining the Boston firm he was associated with the Lucident Co., Paris Cosmetics, Inc., and Labratest, Inc.

▸ James Crowley has been appointed director of advertising and sales promotion of Parfait Sales, Chicago, Ill. He was formerly associated with Helena Rubinstein, Inc., and Stern Brothers, New York, N. Y., and Stix, Baer & Fuller, St. Louis, Mo.

▸ G. S. Fowler has been appointed general sales manager of the Richard Hudnut Sales Co., Inc., New York, N. Y. He has been with the Richard Hudnut organization for 21 years having joined the company in February of 1924. He was made assistant sales manager in 1929 and was promoted to the position of sales manager in 1941.

▸ Maurice C. Taylor, formerly manager of research at the Niagara Falls Laboratories of the Mathieson Alkali Works, New York, N. Y., has been appointed Resident Director of Research and Development. Other research department changes are announced as follows: J. Douglas MacMahon has been named assistant to the Technical Director; C. N. Richardson has been made Manager of Research Engineering; and C. Gerald Day has become Research and Plant Liaison Engineer.

▸ Walter L. Bomer, vice-president in charge of overseas operations for Bristol-Myers, New York, N. Y., has returned to his desk after a year's illness.

▸ H. W. Roden has been appointed manager of the Cosmetics Division of American Home Products Corp., New York, N. Y., and president of Affiliated Products, Inc. In addition to these duties, Mr. Roden is vice-president of the parent organization and president of American Home Foods, Inc.

▸ Mitchell T. Lynch has rejoined Park & Tilford, Inc., New York, N. Y., as assistant to the president of the Tintex and drug sundries division.

Mr. Lynch has been on leave of absence from Park & Tilford for the past three years, during which time he served with the Quartermaster Corps. Prior to the war, he was national sales manager of the division to which he now returns. He has been with the company for about twenty years.

▸ Arthur Moore has been appointed Pacific Coast sales supervisor for All-fabric Tintex Tints and Dyes and Perfumes and Cosmetics for Park & Tilford, Inc., New York, N. Y.

Mr. Moore has been associated

Rhodinol
Rhodinyl Acetate
Linalool
Linalyl Acetate
—
Mousse de Chêne
—
Absolute Resins:
Castoreum
Myrrh
Opopanax
Styrax

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ESSENTIAL OILS & AROMATIC CHEMICALS DIVISION

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with Park & Tilford for eight years. His headquarters will be at 605 Third St., San Francisco, Calif.

▸ W. Lloyd Linton has joined Wilckens Chemical & Cosmetic Laboratories, Ltd., Toronto, Canada, as chief chemist and production manager. He will be located at the company's new plant in Oakville, Ontario.

Mr. Linton is a graduate of the Ontario College of Pharmacy, also a past president of the Canadian Toilet Goods Manufacturers' Association. During the war he served in an advisory capacity on various committees, including toilet goods and pharmaceuticals.

Mr. Linton resigned recently from Northrop and Lyman where he was chief chemist and production manager for many years.

▸ Sidney Dick has been appointed sales manager for Pando & Co., New York, N. Y.

▸ Charles Robinson of the Phoenix Metal Cap Co., Brooklyn, N. Y., welcomed his son, Lieut. William Robinson, back home September 14 after the latter had served 18 months in the field artillery in the European theatre. His other son, Capt. Charles E. Robinson, Jr., is still in the Philippines.

▸ L. H. Macleod has been made regional manager for the Chicago, Detroit, Pittsburgh and Minneapolis area, for Lever Brothers Co., Cambridge, Mass.

▸ Charles A. Young has retired after fifty-two years with Procter & Gamble. He was located at the Ivorydale, O., plant. He was presented with numerous gifts.

▸ Earl N. Felio has been elected president of the New York Credit Men's Assn. He is assistant treasurer and general credit manager of Colgate-Palmolive-Peet Co., Jersey City, N. Y. Mr. Felio was born in Wisconsin and attended Northwestern University and New York University.

▸ J. Osterweil has been appointed director of Manufacturing and Marketing for United Cigar-Whelan Stores Corp., New York, N. Y. Mr. Osterweil will coordinate controlled brands merchandising policies throughout Whelan Drug Stores, United Cigar Stores and Sales Agencies.

E. G. Brown, division manager of Toilet Goods Division, has been promoted to the position of assistant general merchandise manager. In his new position he will supervise sales promotion activities and coordinate merchandising.

Axel P. Gudmand has been promoted to sales promotion manager. In addition to his responsibility as manager of Display Division he will coordinate display, advertising and merchandising, and assist in sales promotional activity.

I. Schneider has been promoted to division manager of the Toiletries Division.

Miss Patricia Bristol has been appointed division manager of the Cosmetics Division. She will be responsible for merchandising all high grade cosmetic lines and selected toiletries specialties.

▸ Frederick E. Couzens has joined Bristol-Myers Co., New York, N. Y., as assistant director of the professional department. Mr. Couzens was born in England. He has been active in business in Australia, England and the continent, and in this country.

▸ William D. Collier has joined Primrose House, New York, N. Y., as sales promotion manager. He was formerly associated with Prince Matchabelli, Inc., and Richard Hudnut.

▸ G. R. Johnson has been placed in charge of ten Southeastern states for Colgate - Palmolive - Peet Co., Jersey City, N. J. He was formerly supervisor of South Carolina.

▸ Harley B. Lewis has been elected president of the Export Advertisers Association. Mr. Lewis is manager of the Kolynos division of Home Products International, Ltd., New York, N. Y.

▸ Gerald M. Compeau has been appointed assistant to the director of the analytical laboratory of Foster D. Snell, Inc. He was formerly research analytical chemist with Colgate-Palmolive-Peet Co.

▸ R. E. Tyriver has been made Eastern regional sales manager of the Pepsodent Division, Lever Brothers Co., Cambridge, Mass. His headquarters will be in New York, N. Y.

▸ James F. Weldon has been made export manager of Sperti, Inc., Norwood, Ohio.

▸ Diane Wheeler has resigned as publicity director of Revlon Products Corp., New York, N. Y.

▸ Dorothy Morrison will handle editorial publicity releases for Dermetics, Inc., New York, N. Y.

▸ Gavin K. MacBain has become assistant treasurer of Bristol-Myers Co., New York, N. Y.

▸ Rodolfo Molina has been made export manager for the Pepsodent Division of Lever Bros. Co., Chicago, Ill.

▸ Carl Gardner, sales manager of Schenfel Brothers, Newark, N. J., has been appointed vice-president in charge of sales and advertising.

▸ Dr. Max Gilbert has joined William R. Warner & Co., Inc., New York, N. Y., as medical director. He is in charge of clinical development of new products, research service and clinical investigation.

▸ Erik Friis-Hansen has been appointed divisional sales manager for the middlewest by Maria Danica Laboratories Corp., New York, N. Y. His headquarters will be in Chicago.

▸ Larry A. Derrick has been made manager of the western division of Mennen Co., Newark, N. J.

▸ Harris Whitaker has become assistant to Arthur Mainzer of Mary Dunhill, Inc., New York, N. Y.

▸ Landon W. Burbage, who has been with Bristol-Myers, New York, N. Y., for the past thirty-two years in the Maryland territory, has been made manager of the New York branch. Mr. Burbage is from North Carolina.

▸ Lee H. Bristol, vice-president of Bristol-Myers Co., New York, N. Y., has been elected president of the China-American Council of Commerce and Industry.

News and events

A. L. van Ameringen Reports on French Perfume Materials

At our request Mr. van Ameringen of van Ameringen-Haebler, Inc., New York, N. Y., and a member of the executive board of the Toilet Goods Assn., who has just returned from a flying trip to Europe, gives us the following intimate picture of present conditions in Grasse in his own words:

In order to obtain a clear picture of the present situation in France as far as it affects the U. S. industry, it is necessary to consider the following five points: French production of floral products and essential oils; French importation of perfume materials; French aromatic chemical production; Consumption by French perfumers; and Value of franc against U.S.A. dollar.

PRODUCTION OF FLORAL PRODUCTS

Contrary to the many rumors circulating in the U.S.A. no flower plantations were plowed under for other uses and no plantations were destroyed for military reasons. However, all plantations are in subnormal condition due to the lack of fertilizers, insecticides, fungicides and labor. On top of that a large percentage of the jasmin plantations are between 20 and 25 years old, which means, at their life's end.

Weather conditions in 1944 caused poor crops so that no carry-over of floral products existed in the beginning of 1945.

The effect of transportation difficulties is handicapping the Grasse producers as well as all of France. It is nearly impossible to bring flowers grown outside of the immediate vicinity of Grasse to that city. Violets, for instance, come from a distance of about 150 kilometers from Grasse, and lack of trucks has created a complete absence of violet leaves absolute. No oak moss has as yet been received from Yugoslavia, and only mousse d'arbre is available in Grasse. A normal crop of rose concrete is about 1500 k.g. This year the crop was about 800 k.g.

It was believed in this country that large quantities of neroli would be available on account of the fact that the German eau de cologne manufacturers, large users of neroli, would be out of the market. For reasons given later in this report, no surplus of neroli is on hand.

The jasmin situation is very tight. Before the war Grasse produced 2500 k.g. of jasmin concrete annually, and imported another 1500 k.g. from French-owned plantations in Italy, Algiers and Egypt. Since the liberation of France no jasmin has been imported from those three countries. The Grasse production for 1944 amounted to between 1250 and 1300 k.g. That means a deficit of about 1250 k.g. for the Grasse production alone.

In 1944 and again in 1945 some new jasmin plantations were started, but extremely hot and dry weather during July and the first week of August, 1945, makes it impossible to predict the crop outcome. However, no larger crop than the 1944 one can possibly be expected. Grasse plans increased plantations for the winter of 1945, and if weather is favorable, counts on a 1946 crop of from 1800 to 2,000 k.g. of concrete. This is still below pre-war production of jasmin concrete. The program is to continue new plantings until the Grasse production reaches 3000 k.g.

Heavy exports of lavender oil to England and the U.S.A. have depleted stocks on hand. The 1945 crop is expected to be about 30 per cent short. Lack of shoes makes picking of lavender in the mountains an undesirable job.

IMPORTATIONS FROM ABROAD

Although Madagascar oils arrived in the U.S.A. since summer 1944, no shipments have as yet been received in France. Considerable orders were placed by French importers but lack of shipping has caused great delay in arrival.

With the exception of a few tons of lemongrass, no essential oils or perfume raw materials have been received in France from any foreign country. Some bergamot and orris are expected soon from Italy.

AROMATIC CHEMICALS

Due to lack of coal and raw materials, aromatic chemical production is at a standstill.

FRENCH PERFUME INDUSTRY

Grasse products, being the only available materials to the French perfumers, have been consumed in far greater quantities than before the war. Many new perfumes and colognes are based entirely on natural French products. The French perfume industry, therefore, looks with alarm at any exports of the only materials still available to them, and is bringing pressure on the Grasse producers to take care of French requirements before exporting.

It is easy to see that increased national consumption at a time of subnormal crops is creating a serious situation. The Grasse producers, however, are trying to allocate their merchandise on a pre-war basis between France and the U.S.A. and England. They fully

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U.S.I. CHEMICAL NEWS

September ★ A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1945

New Synthetics May Have Important Therapeutic Uses

A patented, but as yet unused, process of synthesizing quinoline derivatives, according to the inventor, may yield new pharmaceuticals of great value.

Among these new synthetics are 2-(4-methoxy-phenyl) quinoline-6-sulfofnic acid, and 2-phenyl quinoline-6-sulfonic acid; compounds in the same family as 2-phenyl quinoline-4-carboxylic acid (sold as a pharmaceutical under the names of Atophan or Cinchophene). Further investigation of possibilities of the new compounds appears to be justified.

Information concerning this patent may be obtained by writing to U. S. Industrial Chemicals, Inc.

Lecithin Use Broadens As Cost Comes Down

Because yield of lecithin from soy-bean phospholipids is materially increased by the ethanol-extraction method of preparation this food-processing anti-oxidant and emulsifying agent is now available in cheaper commercial forms. As a result, it is being applied to uses from which it was formerly barred by excessive cost.

Among these newer applications are its use in casein paints, plant sprays, creosote emulsions, and softening and wetting agents. In the synthetic rubber industry, it is speeding up vulcanizing and imparting to many synthetic rubber products properties previously found only in natural rubber.

Cotton Seed Yields Lecithin

A new source of lecithin is cotton seed. Commercially practicable amounts of lecithin are extracted from it by first separating the phospholipids with acetone, then precipitating the lecithin with ethyl-ether in an excess of acetone.

Montan Wax Alternates Made from Ester Gums

Montan wax, an imported material used in the manufacture of electrical insulation, phonograph records, sizing agents, hardeners, linings, coatings and other products, may be replaced by a new synthetic wax-like composition made entirely from domestic raw materials. The synthetic waxes possess most of the properties of natural montan wax, and, unlike natural montan, do not have to be bleached as they are light in color.

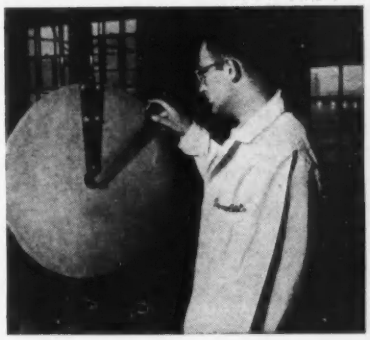
The basic ingredients are a high percentage of ester gum and hydrogenated castor oil. To these are added petroleum wax, petroleum asphalt, or both; or a coal-tar solvent-soluble and gasoline-insoluble resin remaining after solvent refining of wood resin.

Variation of these additives in kind and proportion imparts to the synthetic wax different properties of hardness, moisture-resistance, viscosity, and melting point, thus adapting these new, wax-like compositions to a wide range of applications.

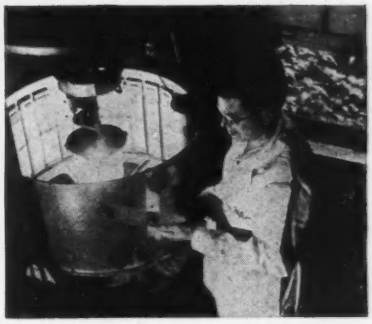
Modern Resin Research Hinges On Wide Range of Physical Tests

U.S.I. Reveals Additional Instruments Used for High-Precision Testing at Its Newark Laboratories

The widespread interest in a recent CHEMICAL NEWS article on instruments has prompted U.S.I. to picture here some of the other instruments which are now working overtime in the company's development of new resins to solve specific wartime problems and in fundamental research aimed toward new and unusual postwar resin products. Although few other fields of chemical research and manufacture depends so heavily on physical testing, these instruments should be of general interest, as well as suggestive of possible adaptations to fields other than resins.



Strength of plastics and plywoods is tested on this accurate impact tester. The weighted arm drops from a pre-set height, breaks the sample at the bottom of its stroke and coasts on up a scale at the left. The height of the swing shows inversely, the amount of energy consumed in breaking the sample, and thus its impact strength.



Synthetic weather is made in this weatherometer which produces the equivalent of months of exposure in a matter of hours. Samples of coatings made from U.S.I. resins are subjected to sizzling sunshine, drenching rains, quick temperature changes—all the conditions they will meet in service.

Purer Vitamins Obtained by New Ethanol Process

More potent vitamins A and D, a New Jersey inventor claims, can be produced by the following process: a concentrate of vitamin A and D, extracted from fish or other marine oil is dissolved in an aliphatic hydrocarbon solvent, and vitamin A is extracted therefrom with an aqueous solution of ethanol. The water content of the ethanol solution is adjusted so that vitamin A will dissolve, but little or no vitamin D will be taken up by the solution.

To separate vitamin D from the solvent-extracted mass, it is esterified, and the esterified vitamin D, now soluble, is removed by extraction with an aqueous solution of ethanol. The water content of the ethanol solutions is adjusted so that the vitamin D esters will be dissolved to the exclusion of any hydrocarbons present.

This Reflectometer electronically measures gloss and color of coatings before, after and during exposure—with great precision. The speed with which measurements are made help U.S.I. chemists get quick answers as to the initial color and gloss and gloss retention of resins.

Uniformly applied coatings are essential to consistent results in studying those coatings. This dip coater, operated by an accurate Telechron motor, dips panels into the coating and withdraws them at a closely controlled rate.

3 Corporate Changes Announced by U.S.I.

Mr. Glenn L. Haskell, President of U. S. Industrial Chemicals, Inc., announces the election, at a recent meeting of the Board of Directors, of Francis T. Dodge, President of Dodge & Olcott, Inc., as a Director, and Bracebridge H. Young, Secretary, as Vice President and Secretary, and the appointment of Thomas H. Casson as Controller.

ADVERTISEMENT—*This entire page is a paid advertisement.*

September ★ **U.S.I. CHEMICAL NEWS** ★ 1945

Improved Wetting Agents Produced With Alcohols

A newly patented process has as its objective increased production of purer sulphated fatty esters, which are used as wetting, penetrating, and emulsifying agents in the textile industry. The end products are said to be clear, oily liquids that produce clear aqueous solutions and have remarkable foaming properties even in highly attenuated dilutions.

The new process prepares these esters in two steps. The first is to produce a low molecular weight alkyl fatty ester by reacting a mono- or polyhydric alcohol, such as ethanol or butanol, with an unsaturated or hydroxy fatty acid in the presence of a catalyst such as alkylated napthalene sulphonic acid. (In place of the lower alcohols, their esters, such as ethyl acetate, or ethyl formate may be used.)

The final sulphated fatty ester is produced by adding a complex alcohol or ester having ether, ketone or amino groups in its molecule. This mixture is treated with a sulphating agent, and after the reaction is complete, the resulting product is washed with a solution of sodium chloride and neutralized.

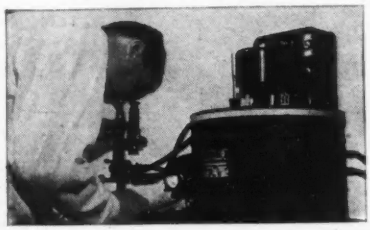
Pantothenic Acid Is Subject of New Patents

One new patent claims to reduce the cost of beta-alanine, intermediate used in the production of pantothenic acid. The new method precipitates beta-alanine from a solution of beta-alanine acid addition salt in ethanol by adding an excess of diethanolamine, ethanolamine and N-morpholinoethanol, or other base having its ionization constant between 4×10^{-8} and 4×10^{-4}.

A second invention covers the production of uniform pantothenic compounds in crystalline form by reacting butyrolactones with beta-alanine. In one example, beta-alanine is dissolved in an aqueous sodium hydroxide solution and d-alpha-acetoxy-beta-beta-dimethyl-gamma-butyrolactone is added. The reaction product is freed of unreacted beta-alanine and acetone is added. The white powder which crystallizes is separated by decanting the mother liquor, and drying the precipitate under high vacuum. The colorless needles thus produced are sodium-l-pantothenate.

Modern Resin Research

(*Continued from preceding page*)



The Refractive-index measurements of liquids are indispensible today in the study and identification of resins and plastics. This precision instrument is kept in an air-conditioned room at U.S.I.'s laboratory.

Flexibility measurements are made by bending a coated metal sheet over a tapered mandrel. The smaller the diameter at which cracking occurs, the better the flexibility of the finish.

This electronic titrimeter gives U.S.I. chemists quick, accurate determinations of acid numbers and oxidation reduction potentials without dependence on color interpretation by the operator.

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

Corrosion-proofing of metal parts, between production operations, is said to be effected by use of a new water-soluble rust inhibitor that forms an invisible dry film. **(No. 973)**

USI

A plastic packaging film, transparent, tough, elastic and tear-resistant, is described in a new 20 page catalog, with many color illustrations showing applications. Said to be odorless, tasteless and insoluble in water and ordinary solvents, it should find wide application. **(No. 974)**

USI

Improved curing of concrete is said to result from the use of a new membrane-type coating, applied to wet concrete to assure proper hydration. Product is reported not to run at high temperatures, nor to wash off when it rains. **(No. 975)**

USI

Faster analysis of gases having absorption bands in the infra-red section of the spectrum is promised by the manufacturer of a photometer-type gas analyzer. Some gas concentrations as attenuated as one part in 10,000 can be detected. **(No. 976)**

USI

Protection of galvanized surfaces against white corrosion is the purpose of two new liquid finishes. They are applied by dip to parts, complete assemblies or sheet. Treated parts are reported to have shown no corrosion in 236-hr salt-spray tests. **(No. 977)**

USI

A stripper for baked japans, as well as lacquers and enamels, until recently available only for war work, is again on the market for civilian use. **(No. 978)**

USI

Four alloys are described as being resistant to diverse corrosive agents. In this group are alloys having high resistance to hydrochloric acid, sulfuric acid (in all concentrations) and corrosive chlorine compounds. Temperature characteristics and workability are said to be good. **(No. 979)**

USI

To render fabrics water-repellent, a new treatment is offered for dip, brush or spray application. It is said that the new treatment does not affect color or finish of fabric and that it prevents mildew. **(No. 980)**

USI

Testing water hardness, to determine proper concentration of polyphosphates for treatment, is said to be done in minutes instead of hours with a new, conveniently packed test set. **(No. 981)**

USI

Improved molded plastic production is promised by the manufacturer of a new, water-soluble material for application to mold surfaces. It is said to prevent sticking and not to discolor the molded plastic part. **(No. 982)**

USI

To stop condensation drip, a manufacturer offers a new coating which can be applied like plaster to pipes and tanks. Claims use of his product can increase refrigeration efficiency up to 25% through evaporative effect. **(No. 983)**

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Completely Denatured—all regular and anhydrous formulas
Pure—190 proof, C.P. 96%, Absolute
*Super Pyro Anti-freeze
*Solox Proprietary Solvent
***ANSOLS**
Ansol M
Ansol PR

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ACETIC ESTERS
Amyl Acetate
Butyl Acetate
Ethyl Acetate
OXALIC ESTERS
Dibutyl Oxalate
Diethyl Oxalate
PHTHALIC ESTERS
Diamyl Phthalate
Dibutyl Phthalate
Diethyl Phthalate
OTHER ESTERS
*Diatol
Diethyl Carbonate
Ethyl Chloroformate
Ethyl Formate

INTERMEDIATES
Acetoacetanilide
Acetoacet ortho-anisidide
Acetoacet ortho-chloranilide
Acetoacet ortho-toluidide
Acetoacet para-chloranilide
Ethyl Acetoacetate
Ethyl Benzoylacetate
Ethyl Sodium Oxalacetate
ETHERS
Ethyl Ether
Ethyl Ether Absolute—A.C.S.
FEED CONCENTRATES
*Curbay B-G
*Curbay Special Liquid
*Vacatone 40

ACETONE
Chemically Pure
RESINS
S&W Ester Gums—all types
S&W Congo Gum Esters—fused & esterified
S&W *Amberol—alkyds and allied materials
S&W *Arolene—para phenolics
S&W *Arochem—modified types
S&W Natural Resins—all standard grades
OTHER PRODUCTS
Collodions
Ethylene Glycol
Nitrocellulose Solutions
Ethylene
*Indalene
Urethan

realize that export markets once lost may be lost forever.

VALUE OF THE FRANC

Knowing nothing about economics, I am giving my impression of the financial question as a layman only.

If we determine the value of the franc only by what it buys today in France, we totally overlook the effects of supply and demand. Due to the extreme scarcity of commodities, French prices, in my opinion, do not reflect the real value of the franc as compared to the U.S. dollar or English pound.

Nobody will claim that $.80 per gallon for black-market gasoline indicated that the U.S. dollar was only worth 25 per cent of its pre-war value. The black-market price was only an indication of the comparative scarcity of gasoline. A comparison of French official prices against black-market prices does not show a uniform increase of black-market over official values, but a terrific variation caused by the comparative scarcity of the different commodities. Bread, for instance, is 420 per cent higher on the black-market, but sugar 1400 per cent.

For years insufficient food was available at official prices and all of France was forced to buy part of its food from the black-market. This logically resulted in wage increases and higher costs of production. Beyond a doubt sufficient supplies will sooner or later eliminate black markets but wage reductions may trail behind a lowering of living costs.

EFFECT ON PRICES

What has been the effect on prices of Grasse products? Below are the flower prices paid in 1939 and 1945:

	1939 francs	1945 francs
Violet Leaves	.44	8.65
Orange Flower	4.04	44.50
Rose de Mai	4.10	44.50
Tuberose	25.55	180.00

The average price of lavender oil increased from francs 225 to 2,000; male manual labor from francs 5.60 per hour to 23.15; male trained labor from francs 6.70 per hour to 27.25; while women labor, extensively used in the Grasse industry, increased from francs 3.80 per hour to 20.66. These are wages for regularly employed factory help.

The price of picking 1 k.g. of jasmin flowers increased from francs 3 to 45.

The flower prices and wages given above explain the very high prices which the Grasse producers have to ask. I can assure you that every one of them is greatly alarmed by the present situation. They fully realize the danger to their industry caused by prices which exclude the normal use of their products. They are not trying to profit from the present conditions; on the contrary, you can rest assured that they will take all possible steps in an effort to arrive at more normal prices.

In ending this report, it must be mentioned that at the beginning of August, 1945, not a drop of Grasse products had been shipped to England.

We can thank the U.S.C.C. for the fact that the U.S.A. has received numerous shipments since late May, 1945. The U.S.C.C. not only expedited shipments of orders placed through them, but the work of their representative in France, Mr. G. M. Strauss, also greatly facilitated transactions directly between American importers and French shippers.

FUTURE OUTLOOK

Future supplies of all floral products and most French essential oils will remain short for at least another year and maybe longer. Prices will remain high even if the value of the franc should be changed from 50 francs to 100 francs to the U.S. dollar.

EXCLUSIVE WITH HOPKINS

FACTOLAC
For Perfect Emulsions of Fixed and Volatile Oils
Assures complete, homogeneous mixtures without trituration or special apparatus. Produces PERMANENT, creamy-smooth emulsions. Saves money, time and trouble . . . Write for formulas.

GUMS Whole or Milled to any degree of fineness
PROFESSIONAL GRADES
Gum Arabic Gum Tragacanth
Gum Karaya
We handle only the best professionally milled, pharmaceutical grades. If you require purity, solubility and viscosity, ask us for samples and quotations.

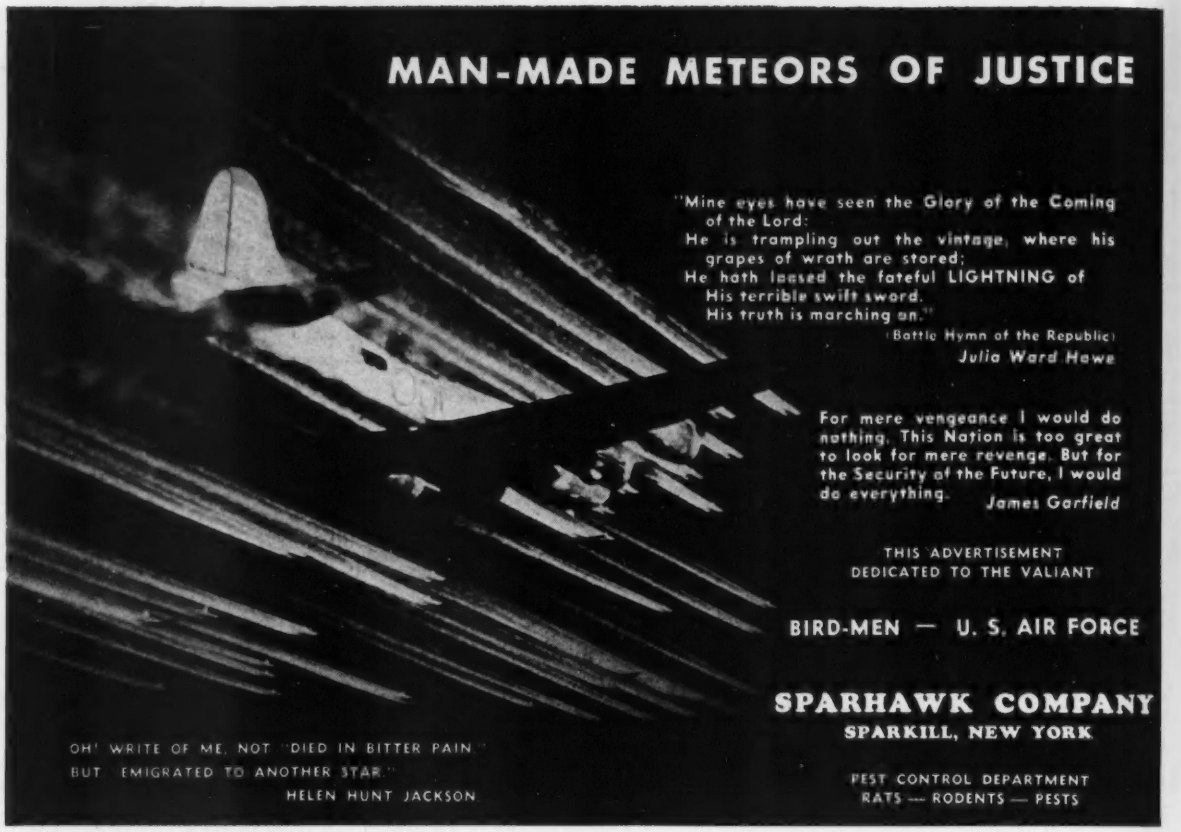
"Quality is remembered long after price is forgotten"

HOPKINS' FIJIOLINE
For Products Requiring a Reliable Mucilagenous Base
A natural vegetable compound, semi-liquid, mucilagenous, almost entirely odorless. Mixes readily with oils and water. Ideal substitute for Quince Seed, Gum Tragacanth, Irish Moss, and Flaxseed bases.

HOPKINS' NEUTRAL POWDERED WHITE SOAP
Extensively copied, never duplicated. Combines extreme whiteness with wholly neutral taste, low moisture content, very low residue of alcohol, water and sodium carbonate, resistance to varying temperatures, good meshing quality and non-hardening, non-rancid properties.

BASIC INGREDIENTS OF TOP QUALITY
FOR TOILETRIES • COSMETICS • PROPRIETARIES
Full information, samples and quotations on request.
Please indicate uses intended so that we may offer our best suggestions.

J. L. HOPKINS & CO. • 220 BROADWAY, NEW YORK 7, N. Y.


MAN-MADE METEORS OF JUSTICE
"Mine eyes have seen the Glory of the Coming of the Lord:
He is trampling out the vintage, where his grapes of wrath are stored;
He hath loosed the fateful LIGHTNING of His terrible swift sword.
His truth is marching on."
(Battle Hymn of the Republic)
Julia Ward Howe
For mere vengeance I would do nothing. This Nation is too great to look for mere revenge. But for the Security of the Future, I would do everything. James Garfield
THIS ADVERTISEMENT DEDICATED TO THE VALIANT
BIRD-MEN — U. S. AIR FORCE
SPARHAWK COMPANY
SPARKILL, NEW YORK
PEST CONTROL DEPARTMENT
RATS — RODENTS — PESTS
OH! WRITE OF ME, NOT "DIED IN BITTER PAIN"
BUT "EMIGRATED TO ANOTHER STAR."
HELEN HUNT JACKSON

Photograph courtesy American Air Corps, U. S. Army

SAME OBJECTIVE

...different results

Grinding methods of years gone by, especially the one used by cave men, were crude. But, they served the purpose at that time.

Today, grinding done by Whittaker, has become an exact science. It is more than merely pulverizing cosmetic ingredients to a specified micron size. As an instance, it involves a comprehensive study of the crystalline structure of various grades of the same mineral. This results in a better understanding of the characteristic properties and how they will be affected by grinding.

As a benefit of this research at Whittaker, you get the proper grade of cosmetic ingredients, ground to the proper maximum micron size, which will aid in bettering the over-all quality of your cosmetics.

Albatex • Stearates • Purified Cosmetic Titanium • Colloidal Kaolin
Magnesium Carbonate • Precipitated Chalk • Colors • Talc

7683

EST. WHITTAKER 1890

Whittaker, Clark & Daniels, INC.

260 West B'way, New York 13, N. Y. • Plant: South Kearney, New Jersey

Sales Representatives

CHICAGO — Harry Holland & Sons
NEW ORLEANS — Edward W. Ortenbach
PHILADELPHIA — Peltz & Company
TORONTO & MONTREAL — Richardson Agencies, Ltd.
CLEVELAND — Palmer Supplies Co., formerly Palmer Schuster Co.

TGA Scientific Section Meeting to be Held

At a board meeting held Sept. 6, it was decided to hold a meeting of the Scientific Section of the Toilet Goods Association.

As we go to press no definite details have been arranged, but the meeting will probably be held in New York, N. Y., early in December.

"March of Time" Features Beauty Business

The forthcoming "March of Time" feature, "American Beauty," is to be devoted to the cosmetics business.

Some of the firms which cooperated in the filming of this feature were: Harriet Hubbard Ayer, Inc.; Coty, Inc.; Antoine de Paris, Inc.; Helena Rubinstein, Inc.; Macy's and Saks Fifth Avenue.

"American Beauty" is scheduled for release about October 5.

Soap Picture Easier in Canada

It is reported that increased supplies of soap will be available in Canada within a few weeks as a result of a new order designed to increase production.

F. H. Lehberg, administrator of oils and fats in Ottawa, said the new order would bring about a redistribution of several million pounds more laundry soap.

Mr. Lehberg said there was no lack of soap in Canada. The recent scarcity of bar laundry soap was simply the result of a shortage of a specific raw material required for this variety coupled with the fact there had been "panic buying and hoarding."

Lentheric Schedules Biggest Ad Campaign

The 1945 Fall and Christmas advertising campaign for Lentheric, Inc., New York, N. Y., will be the largest in the company's history.

It will mark the first time in ten years that the company will resume advertising in newspapers to augment insertions in national fashion and women's magazines.

Newspaper advertising is scheduled to break during the week of October 15. Magazine advertising is to run in October, November and December.

Edlund Salutes Soap Industry

Roscoe C. Edlund, speaking as guest of honor on Union Pacific Railroad's "Your America" radio program, Sept. 2, saluted the soap industry for its efforts during the war.

Appealing to the housewife to salvage fats he said: "It will be months before we can import the quantities of oils which America needs. . . . Every housewife should, therefore, realize that an increase in Household Fat Salvage is urgent. At this juncture it is only you housewives who, through painstaking day-by-day salvage, can help to build up the total fat supply."

Helena Rubinstein Tax Case Decision

The U. S. Circuit Court of Appeals, Second Circuit, decided for the Government on August 20, and affirmed the denying decision on a refund of manufacturer's excise tax on toilet preparations. The case was H. R. Laboratories, Inc., v. U. S., 55 F. Supp. 266.

BENJ. FRENCH, INC.

ESSENTIAL OILS AROMATIC CHEMICALS

ORIGINAL PERFUME BASES

FLORANTHUS

Novelty base giving a sweet, flowery lift to compositions, at the same time is very lasting. Excellent base for modern odors; does not discolor.

Price: $16.00 per pound

Since 1914—Agents for

Descollonges Freres, Lyons, France

160 FIFTH AVENUE NEW YORK 10, NEW YORK

BRIDGEPORT...

For the past two years our facilities have been devoted almost exclusively to the production of war materials. We have been fortunate, in that we have been able to handle this work on the same equipment used for our regular peace time products, and, consequently, when material again becomes available for lipstick containers, vanity cases and other metal cosmetic items we will be prepared to start producing our regular line immediately. If you too are planning your post war program, we will be glad to assist you.

THE *BRIDGEPORT* METAL GOODS MFG. CO.

BRIDGEPORT — *Established 1909* — CONNECTICUT

'PHONE BRIDGEPORT 3-3123

VANITY CASES • ROUGE CASES • PASTE ROUGE CONTAINERS • LIPSTICK HOLDERS (ALL TYPES) • POWDER BOX COVERS • EYEBROW PENCIL HOLDERS • BOTTLE CAPS • JAR CAPS • METAL NOVELTIES TO ORDER

Genuine **ORRIS** *again* **AVAILABLE!**

OIL ORRIS ROOT LIQUID ABSOLUTE
ORRIS CONCRETE
ORRIS OLEORESIN *(Resinoid)*

We are gratified to announce that, having received a shipment of Florentine root, we are again able to produce these well known Bush specialties.

W. J. BUSH & CO. Inc.

ESSENTIAL OILS . . . AROMATIC CHEMICALS . . . NATURAL FLORAL PRODUCTS

11 EAST 38TH STREET, NEW YORK 16, N. Y.

LINDEN, N. J. — **NATIONAL CITY, CAL.**

LONDON — **MITCHAM** — **WIDNES**

BIMS Plandome Golf Session

The usual BIMS good luck prevailed at Plandome on August 23. Over 70 members and their guests had a grand day with good scores resulting. Shortly after the last foursome came in at 6:30 the rain started.

Prize winners, as announced by Chairman Martin F. Schultes, were: Grand prize, Walter J. Jamieson; George H. Fuller; Sewell H. Corkran; Paul A. Dunkel; Clint Brinkerhof; John E. Gabrielsen; C. E. Hemingway; Augustus H. Bergmann; Stanley Sapery; K. L. Patterson; Carl Peehl; C. R. Keeley; R. C. Grant; Fred C. Kaiser; Paul E. Forsman; John O. Grode; Harry W. Heister; Alfred F. Brady; Carl A. Claus and Clifford Pettit.

Nyal Package Modernization Program

Continuing its package modernization program, inaugurated by E. P. Matthiessen, the Nyal Co., Detroit, Mich., has dressed its new product Lumax in a smartly designed container, and has changed over the Nyal Foot Balm and Foot Cream to conform with the blue and white of its external antiseptic series.

About one third of the more than 300 Nyal product containers have now been modernized.

Dow Chemical Adds New Merchandising Division

Dow Chemical Co., Midland, Mich., has added a new merchandising division, headed by Sherman W. Putman. The New Specialty Products Division is expected to concentrate on specialty insecticides and certain fabricated magnesium articles, but may add to its line as dictated by future developments.

American Home Products Restyling Line

American Home Products Corp., New York, N. Y., has taken steps to restyle and modernize the packaging of its lines of cosmetics.

H. W. Roden, vice-president, is now head of the cosmetics division and president of Affiliated Products. He also continues as president of American Home Foods.

New York University Course on Marketing Cosmetics Resumes October 1

The course on marketing drugs and cosmetics conducted by Prof. Louis Bader and Sidney Picker at the School of Commerce, New York University for two successful terms last year will be resumed October 1. The course is given in the evening. Full details may be had by writing to the Registrar of the School of Commerce, Washington Square, New York, N. Y.

Perfume and Cosmetics Industries Praised for War Effort

F. H. Dresel, Philadelphia manager of Felton Chemical Co., Inc., praised the war effort of the perfume and cosmetics industries when he acted as host recently to the "Valley Forge Caravan," a one-hour radio show that delivers each night a salute to one of America's industries. Sponsor of the show is Adam Scheidt Brewing Co.

Mr. Dresel spoke of camouflage creams, lipsticks for chapped lips, fuses of all types, and the masking of objectionable odors.

UNSOLICITED

The many refinements we have introduced in lipsticks, powder, rouge, mascara, eyeshadow, etc., were entirely unexpected by our clientele, but quickly recognized as valuable additions to the selling power of their cosmetics.

May we send you samples which prove that there is a better product waiting your decision? A line on your letterhead will be appreciated.

KELTON

Cosmetic Company

230 West 17th Street
New York 11, N. Y.

819 Santee Street
Los Angeles 14, Calif.

Lipstick • Eyeshadow • Rouge • Mascara • Powder

there is no finer
cosmetic container
than a Karl Voss box

Karl Voss Corporation
HOBOKEN NEW JERSEY

Essential Oils and Aromatic Products

Announcing

our new creation . . .

FLEUR D'ORIENT

An exquisite and delicate fragrance which embodies the alluring beauty and exotic charm of the Orient.

Cosmetic and soap manufacturers will find this unique creation the answer to their long-sought problem for "something different".

Samples gladly sent on request.

Let's Solve Your Perfume Problem:

We are in position to solve ANY perfume problem. In addition to being direct importers, we also compound various standard and special items. The services of an eminent chemist, now a member of our manufacturing staff, are available to you.

• Write, phone or wire . . .

Try us for quality, price, delivery, better service. Let us quote on your requirements. Coast trade: Contact O. D. Royer Co., 1340 East Sixth St., Los Angeles.

EDWARD REMUS & CO. Inc.

11 West 42nd Street • New York 18, N. Y.

CABLE ADDRESS: EDSUMER, NEW YORK
TELEPHONE: CHickering 4-4382

FACTORY & WAREHOUSE
607 West 43rd Street
NEW YORK, N. Y.

WESTERN OFFICE
816 Delaware Street
KANSAS CITY, MO.

World's Largest Beeswax Bleachery

As a result of well planned improvements and extensions to its plant in Sayville, N. Y., made during the last few years, Koster Keunen is in a position to meet the needs of its many customers for beeswax, microcrystalline waxes, ozokerite wax, and allied products. One of the additions is a new spacious office building consisting of private offices, directors' room and large administrative quarters. Also, a new warehouse has been added and the factory has been enlarged to about five times its original size and is completely equipped with oil burning boilers, modern equipment and a scientifically well appointed laboratory. The area covered by the sun bleachery is over 15 acres, well over half of which are filled with 140 bleaching racks, each 150 feet long and 5 feet wide, making it the largest sun bleachery in the world. The beeswax is imported from Africa and South America.

Frans Koster

The company was established in 1852 in Aalst, Holland, by J. van den Ven who was married to Mrs. Keunen. In 1870, Mrs. Keunen married B. Koster which led to the adoption of the name B. Koster Keunen. A sun bleachery was operated in Aalst and before World War I, in Orleans, France. At present bleacheries are operated in Aalst near Eindhoven, Holland, and in Sayville, N. Y. The Sayville plant was opened in 1932 by the late Alphons Koster, brother of Louis Koster, head of the European house. In 1941, the Koster Keunen Manufacturing Company was organized by Frans Koster, as a subsidiary to make micro-crystalline waxes, ozokerite and allied products needed urgently by the government.

Frans Koster was graduated from Munich University in 1935 as a chemist, and while there he studied under the distinguished Prof. Hans Fischer. From then on he divided his time between the Aalst and Sayville plants; and since the death of Alphons Koster in 1939, he has been in complete charge of the plant in Sayville and the business of the company in the United States. Unknown to most in the trade, Mr. Koster is a skilled aviator, flying his privately owned airplane. His younger brother, Joseph, who was associated with him in Sayville, has been serving in the armed forces of the United States in the European theatre.

The company maintains a sales office at 70 Pine St., New York, N. Y., and is represented in the Midwest territory by Walter H. Jelly and Co. of Chicago.

Shipment of Florentine Orris Root Received by W. J. Bush & Co.

W. J. Bush & Co., New York, N. Y., one of the first producers of orris concrete, announces that it has received a shipment of Florentine orris root and is filling orders for orris concrete, oleoresin and absolute in sequence as received. This is welcome news to perfumers who have been literally starved for genuine orris products for so long.

Use

NORTHWESTERN ETHYL BUTYRATE

when this ester is called for in your formulae.

For many years more than half of Ethyl Butyrate sold in this country has been manufactured by us — proof of the fine quality of our product.

The NORTHWESTERN CHEMICAL CO.

INCORPORATED 1882 WAUWATOSA, WISCONSIN

PERFUMERS

BASIC MATERIALS

BASIC

PERFUME

SPECIALTIES

BUSH AROMATICS

INCORPORATED

136 LIBERTY STREET
NEW YORK CITY

Cable address: ARROBUSH
Telephone: WOrth 2-6557

ARE YOU ONE OF THE MANY

pharmaceutical and cosmetic manufacturers making profitable use of

ISCO ALGIN

(American Origin)

ISCO-ALGIN is a uniformly viscous colloidal material which forms a homogenous, flexible film.

- Makes a valuable dispersing and thickening agent suitable for use in the production of Drugs, Pharmaceuticals, Cosmetics and Dental Supplies.
- A perfect stabilizer for Emulsions.
- Gives body to Sun Tan Lotions and similar preparations.
- Fine in Hand Lotions and Industrial Hand Protective Creams.

•

Write for further information and samples

INNIS, SPEIDEN & CO.

117 LIBERTY STREET • NEW YORK 6

BOSTON 10 • CHICAGO 10 • CINCINNATI 2
CLEVELAND 15 • GLOVERSVILLE • PHILADELPHIA 8

New Daggett and Ramsdell Line

A new line of cosmetics, intended for bath use, is to be introduced in 1946 by Daggett and Ramsdell, New York, N. Y. The new line, featuring a new fragrance, is to consist of soap, bath salts, cologne, bath powder, bath oil, etc.

Mme. Suzy Visits U. S.

Mme. Suzy of Paris played hostess to a convivial gathering at a cocktail party given August 22, at the St. Regis Hotel.

In speaking of the condition of the perfume industry in Paris she remarked on the similarity shown during the German occupation of Paris and after its liberation in the long queues of soldiers lined up awaiting their turn at the perfume counters. The only difference was that they wore different uniforms.

She also spoke of the shortages of bottles, coal, etc., which hampers the resumption of full production.

After a short time Mme. Suzy will make a tour of this country on a good-will mission to renew old acquaintances and to show her friends a small collection of hats, and to get the "touch" of America and its people which she has missed these past years.

"Shameless" Now Comes In One-Ounce Bottles

To augment their line of "Shameless Eau de Parfum," Nadair Parfums, Los Angeles, Calif., has now added a new 1-ounce bottle of "Shameless." The new "baby" is to sell for $1.25.

Sterling Drug Reports Earnings

Net earnings of Sterling Drug, Inc., and subsidiary companies for the six months ending June 30, after all charges and provisions for Federal and foreign income taxes, were $5,563,702.

This is equivalent to $1.48 per share on 3,749,456 common shares outstanding during the period. For the comparable period of 1944, net earnings, as adjusted, were $4,622,407, or $1.32 per share on the then outstanding stock.

Wilckens in New Quarters

Wilckens Chemical & Cosmetic Laboratories, Ltd., Toronto, Canada, has announced the main part of its manufacturing is to be done in new facilities at Oakville, Ontario, where it has leased approximately 7,000 square feet of space. Rouge manufacturing is to be continued at 58 Stewart St., Toronto. New executive offices and sales rooms will be opened soon at an address not yet disclosed. The company recently entered into an association with Kolmar Laboratories, Inc., Milwaukee, Wis.

New York State Bar Assn. Forms Drug Unit

The New York State Bar Assn. has formed a new section to deal with laws as they apply to drugs, cosmetics and foods. The new section is headed by Charles Wesley Dunn as chairman.

Members of the section will be: Lewis A. Ackley; Carl M. Anderson; Thomas H. Brown, Jr.; James G. Flanagan; James F. Hoge; Hugo Mock; George Sibley and E. Sillman.

Since 1927
Creator of distinctive perfumes for the trade.

BEESWAX

U.S.P. Pure Sunbleached
U.S.P. Pure Yellow Refined

OZOKERITE

•

CERESINE

•

MICRO CRYSTALLINE PETROLEUM WAXES

•

SPECIAL WAX BLENDS

KOSTER KEUNEN

Main Office and Refinery: Sayville, N. Y.
Phone: Sayville 400

New York Office: 70 Pine Street
Phone: Whitehall 4-4696

Ask for Samples, Prices and Technical Data

GUNNING ··SINCE 1922

We supply the Soap, Perfume, Drug, Pharmaceutical, Food, Flavor, Cosmetic and Insecticide Trades.

Here are a few of the products of our own manufacture

AROMATICS

Amyl Cinn. Aldehyde	Eugenol
Aldehyde C-14 (Peach)	Geraniol Prime
Anethol N.F.	Geraniol for Soap
Benzyl Benzoate F.F.C.	Ionone for Soap
Cinnamic Aldehyde	Linalool Extra
Citral C. P.	Methyl Ionone

NATURAL & IMITATION OILS

SPECIALTIES — COMPOUNDS

Deodorant Oils — Flavoring Oils

Perfume Odors

Spice Oils — Perfume Oils

GUNNING

GUNNING AND GUNNING

601 WEST 26TH ST., NEW YORK 1, N. Y.

AROMATIC CHEMICALS MANUFACTURING DIVISION

Colgate's Profits Show Rise

The Colgate-Palmolive-Peet Co., Jersey City, N. J., reports a net income for the six months ending June 30 of $3,182,547, or $1.49 per common share, as compared to $3,140,254, or $1.46, for the corresponding period in 1944.

This income was derived principally from sales in the United States, as income from abroad amounted to only $29,893.

Domestic sales amounted to $70,831,725 during the first half of the current year. Net current assets were $45,614,687. Cash and Government securities, exclusive of reserves for income and excess profits taxes, amounted to $24,306,516.

Monsanto Worked On Atomic Bomb

Monsanto Chemical Co., St. Louis, Mo., and many of its scientists have been closely identified with the development of the atomic bomb since the inception of the project. So well was the secret kept that fellow workers at the company's Dayton operations did not know what was going on.

Monsanto's principle contribution to the program was research, process development, design of plant and subsequent production of some of the material. Later the company assumed responsibility for the operation of a large part of the Oak Ridge, Tennessee project.

Chen Yu Sponsoring War Bond Contest

Associated Products, Inc., Chicago, Ill., has announced a $5,000 War Bond contest for Chen Yu window displays to appear in October and November.

Entries are divided into two classes with department and specialty stores in one group, and drug stores in a second group. Identical prizes will be awarded in each case.

First prize is to be a $1,000 War Bond; second prize, $500 War Bond; third prize, $250; fourth prize, $125; fifth prize, $75; sixth prize, $50; and twenty honorable mention prizes of $25 War Bonds. A $2 merchandise credit will be given every store submitting a photograph.

Philip Pepper Buys La Fré Cosmetics

La Fré Cosmetics, Philadelphia, Pa., has been purchased by Philip E. Pepper. The company is featuring La Fré powder.

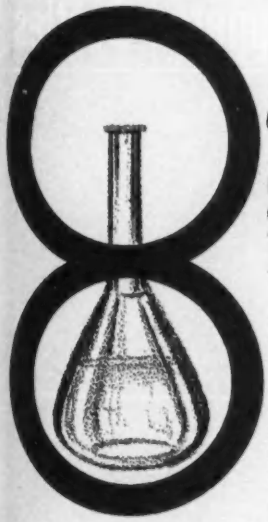
ADCAM Holds Golf Meet

The regular monthly meeting of the Allied Drug & Cosmetic Association of Michigan was held at the Birmingham Country Club on August 28.

$1,000,000 Addition to Atlas Plant

The construction of an additional new chemicals manufacturing unit at Atlas Point Plant, near Wilmington, Del., to cost more than $1,000,000, including equipment, has been authorized by the War Production Board. Construction will get under way shortly, and completion of the unit is expected within one year from that time.

The new facilities will consist of several buildings, and will be devoted to the manufacture of sorbitol.



8 Reasons Why PLYMOUTH

ZINC STEARATE U. S. P.

IS BEST FOR DRUGS AND COSMETICS

1 Backed by the longest commercial Stearate manufacturing experience in America . . M. W Parsons offer you this new product as the finest Zinc Stearate that can be made.

2 Years of research have made possible a particularly white product

3. Special production methods . . . developed over more than a quarter of a century . have made it ODORLESS

4 It will not develop offensive odors even if kept for a long period

5. It enables your face powder to retain the same odor that you give it.

6. A smooth, light, fluffy texture has been finally and definitely achieved.

7 Tested independently it shows the following results: ARSENIC (Gutzeit and Spectrographic Test) . . Not Found. LEAD (Spectrographic Determination) . . . 1.7 parts per million.

8. The reputation and record of M. W. Parsons assure you of Uniformity in all shipments.

We also manufacture a superlative grade of PLYMOUTH MAGNESIUM STEARATE

M. W. PARSONS

59 BEEKMAN STREET NEW YORK, N. Y., U S. A

Imports and PLYMOUTH ORGANIC LABORATORIES, Inc.

Telephone BEEKMAN 3-3162—3163—3164

Cable Address PARSONOILS, NEW YORK

A complete line of Cosmetic Raw Materials

René Forster Company

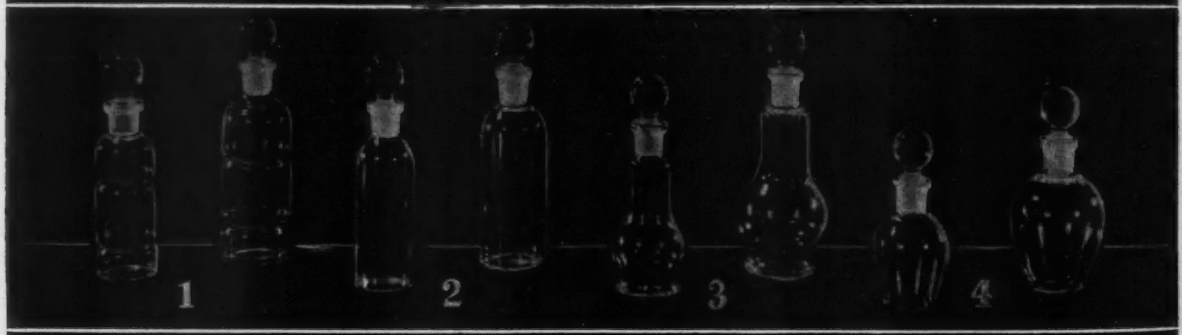
Fine Aromatic Chemicals

Essential Oils Specialties

404 Fourth Ave. New York 16, N.Y.

Murray Hill 5-0250

Additional Creations of our New Distinctive Stoppered Bottles



Four Distinct Styles:

1. SPOOL TYPE (Exclusively Consigned for 1945)
2. SMOOTH ROUND (Available)
3. BULB TYPE (Available)
4. TEAR DROP (Available)

These hand made, unique, glass stoppered bottles have a fine-polished glass stopper with 400 grit finish. Guaranteed leak proof. Continued shipment assured.

Other Items We Can Supply:

Plastic and metal closures for the cosmetic trade in a variety of designs and colors. Bottles and jars in Opal & Flint — Specializing in enameling caps in your color.

For Details Write At Once

RICHFORD CORPORATION · 221 Fourth Ave. · New York 3, N. Y.

Phones: ALgonquin 4-6311 · 4-6312 · 4-6313

New Lentheric Showrooms in Chicago and West Coast

Lentheric, Inc., New York, N. Y., is opening three new showrooms this month, located at 26 O'Farrel St., San Francisco, Calif.; 520 West 7 St., Los Angeles, Calif.; and 104 S. Michigan Ave., Chicago, Ill.

The new showrooms will be under the direction of R. W. Kein, Newton Chipley and W. R. Tenney. Mr. W. D. Canaday will officially open the showrooms.

Coincident with the announcement of the new locations the company has revealed that the Fall and Christmas advertising campaign will be the largest in it's history.

W. J. Bush & Co., Ltd., Holds Annual Meeting

The forty-eighth annual general meeting of W. J. Bush & Co., Ltd., was held on August 14, London, with Dr. P. C. C. Isherwood presiding.

Dr. Isherwood disclosed that the company had been engaged in the manufacture of numerous products essential to the war effort. These chemicals were used in the aircraft industry and chemical defense. They also comprised antiseptics, synthetic drugs and insecticides. The production of fruit juices has increased.

A sum of £30,000 was set aside, which in addition to a previous sum of £20,000, makes a total of £50,000 for a pension fund.

A proposed final dividend of 6 per cent, making a total of 10 per cent for the year, was voted. The retiring directors, The Rt. Hon. Lord Hayter, E. L. Bush and R. R. Webb, were reelected.

TGA Adds New Members

Eleven new active members, and one new associate member, have joined the Toilet Goods Association, Inc., since our last report.

The new active members are Constance Bennett Cosmetic Co., Chemo Puro Mfg. Co., Childhood House, Gaylord Products, Inc., Henlan, Inc., Miahati, Inc., Natalie Louise, Inc., Tewi Perfume Co., John P. Wilde Co., Woodland Toiletries and W. F. Zimmerman, Inc. Ph. Chaleyer, Inc., is the new associate member.

Membership as of Sept. 14 was: Active 336, associate 146, total 482.

Merck Adding Large Manufacturing Units

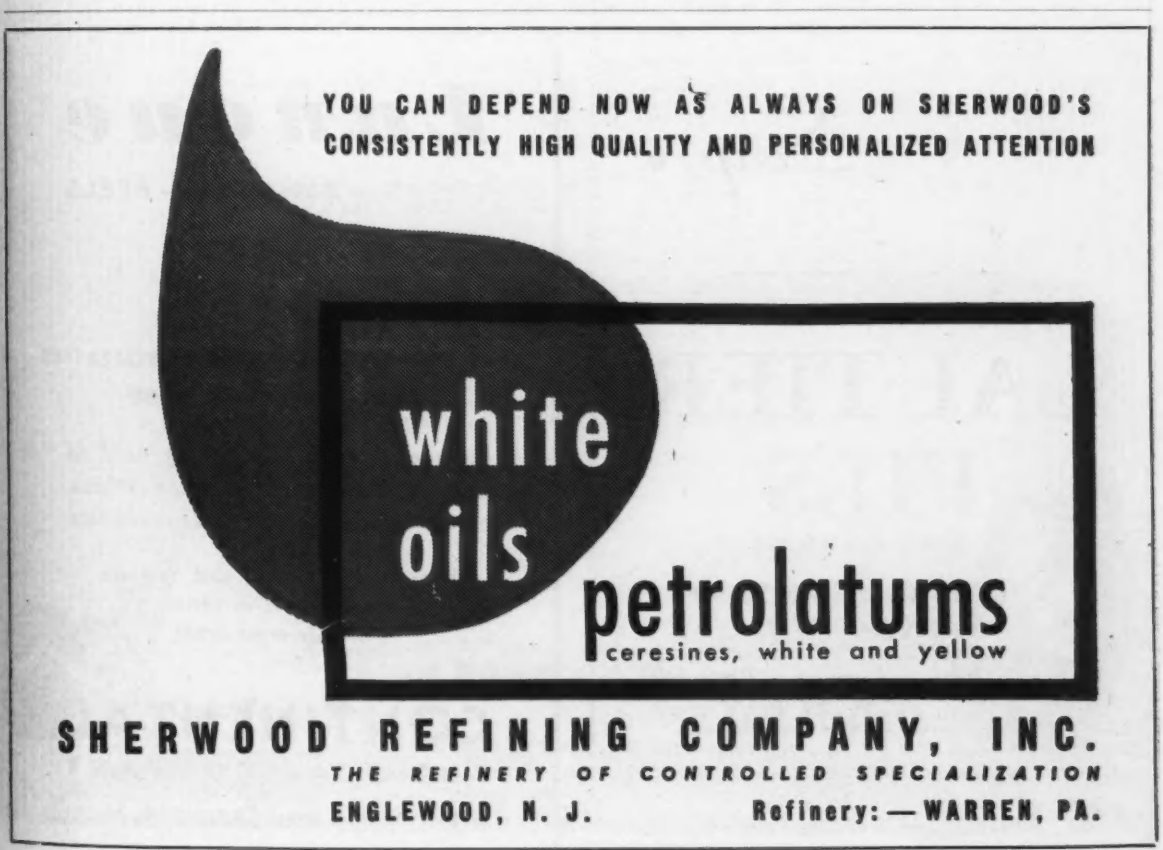
Construction is being started on large manufacturing units for the production of streptomycin, a new antibodic, by Merck & Co., Inc., Rahway, N. J.

Streptomycin is an extract of a mold, and is used in combatting certain infections not affected by penicillin.

A production unit consisting of three buildings will be constructed at Elkton, Va., where the fermenters will be located. A unit for drying and packaging the drug will be erected at the company's main plant at Rahway, N. J. Total cost will be approximately $3,500,000.

Patent Register In Operation

Since its inception a short time ago the public register of patents has listed some 300 patents which are available for license. Others are in process of being added. The activity is sponsored by the Department of Commerce.



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NWDA Cancels This Year's Convention

The National Wholesale Druggists Association has canceled plans for an annual convention this year. Instead, a meeting of its officers will take place in New York on Sept. 27.

The purpose of the meeting will be to elect new officers and members.

Imra Deliveries Now Unrestricted

Artra Cosmetics, Bloomfield, N. J., announces that all restrictions have been lifted on the delivery of Imra. It is now available in the 65¢ (retail) jar only in unlimited quantities for immediate delivery.

Atlas Proposes $400,000 Laboratory Expansion

An appropriation of $400,000 for the construction of new units to expand the Wilmington research facilities of Atlas Powder Co. has been approved by the Board of Directors. M. J. Creighton, general manager of the Industrial Chemicals Department, announced: "Application will be made at once to the War Production Board, and construction of the new facilities will go ahead as soon as their approval is received."

Jacqueline Cochran Cosmetics Buys Building

Jacqueline Cochran, New York, N. Y., has purchased the six-story building at 10 West 56th Street for her business. The business will be moved to the new address as soon as alterations have been completed. This is the second expansion move by Miss Cochran since entering the cosmetic business.

It is planned to use the first floor as a reception room and retail shop for the sale of cosmetics. The second floor will be converted into a display room and the third will be used by the administrative offices. The fourth, fifth and sixth floors will be used by the New York personnel of the organization, as well as accommodating a complete sales training department. The sixth floor will have a lounge for employees.

Pond's to Release Make-up Movie to Teen-Agers

A special preview of Pond's, New York, N. Y., educational movie "Good Grooming" was held on Sept. 12, at the Park Lane Hotel. Featuring Mary Stuyvesant, Pond's beauty advisor, this three-reel film in Kodachrome has been planned particularly for the teen-age girl, and is the newest development on the Pond's educational program.

This program was launched nearly three years ago when Mary Stuyvesant began giving talks on good grooming to the junior hostess organization of the USO.

In the movie, Miss Stuyvesant covers the fundamentals of good health, exercise, diet and posture, and then goes into good taste in make-up and dress. Annoying mannerisms and careless habits are also touched upon with the rights and wrongs graphically illustrated.

"Good Grooming" was produced by Frank Donovan Associates and will be released by Castle Distributing Corporation to some 5,000 junior and senior high schools in the United States. It is estimated that the film will be seen by over 1,000,000 teenagers as a feature of regular good grooming courses.

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MARKET REPORT

Vanilla Beans Shipped from Madagascar

COMPARATIVELY few price movements were noted in essential oils, aromatic chemicals, and other closely related articles. Peppermint, celery and sweet almond oils displayed an easier trend, but this was more than offset by the strength in virtually all of the floral oils, and continued shortages of such items as bois de rose, bergamot, lemon, and patchouli.

There appeared some evidence of an easing in aromatic solvents, but in the opinion of the trade, it will require many months before the manufacture of aromatic chemicals on a more normal scale will be possible. The labor problem, it is feared, will continue despite the release of a great many war workers and returning soldiers from abroad.

Inquiries are already being made in China as to the possibility of obtaining replacements of anise oil, cassia, menthol, and several other items that normally come from that country. China, like many other countries, has been affected by inflationary trends, but there are some in the trade who feel that the urgent need for dollars will have a material influence upon future replacement costs if the commodities are available for immediate shipment.

BRAZILIAN MENTHOL PRICES DROP

Prices on Brazilian menthol dropped to a record low level because of additional arrivals, and the presence of a fairly large spot supply. The minimum export floor price was lifted by the Brazilian Government and there are some in the trade who fear prices will continue to work lower with the ending of the war with Japan increasing the possibilities of an early resumption of imports of this article from the Far East.

The Bureau of Internal Revenue in Treasury Decision 5467 reported the approval of two new sub-paragraphs relating to supporting data required under the alcohol tax drawback regulations. Apparently the changes only affected the submission of formulae. Previously these formulae had been submitted with the claim for drawback without filling out a standard form. Now the formula is only sent in at the time or before manufacture is started. Therefore, the manufacturer can now learn in advance from the Treasury Laboratory whether the alcohol used in the formula qualifies for drawback. The new regulations also provide that drawback claimants on distilled spirits used in non-beverage products produced after April 1, 1946, must file their formulae according to the regulations on or before January 1, 1946.

CITRIC ACID OFF ALLOCATION

Citric acid was taken off allocation August 31. This resulted in a slackened demand for tartaric acid since consumers in some lines believed that it might be possible to return to the use of citric. However, it was still difficult to obtain citric acid and it is quite possible that those formerly using tartaric acid may be forced to return to its use for another month or more.

Extension of distribution controls by the War Production Board for some time may assist the industrial alcohol industry to readjust itself to peacetime conditions. A huge production capacity exists and a decided improvement in civilian demands will be necessary to offset an accumulation of supplies that seems likely to be noted as the result of severe cutbacks in military demands.

Arrival of 1,040 drums of glycerin from Montevideo, Uruguay, and reduced demands from the Government for rocket powder caused some in the trade to take on a rather bearish outlook regarding the future of the market. Some trade factors went so far as to predict lower prices in the months ahead, but according to authoritative reports the explosives demand in September was fully as large as it was in August and it is understood that the cosmetic, pharmaceutical and other consuming lines stand ready to absorb any surplus material that may appear in the open market. In the event that domestic consumption should fall there is a sufficient number of export orders on hand to keep the market in a firm supply position. It is hoped that price regulations will be continued. Continuance of ceilings will prevent any possibility of advances, it is explained. The greatest increase in domestic consumption will come from the protective coatings industry with the advent of an expanded output of automobiles, washing machines and other badly needed civilian goods.

VANILLA BEAN SHIPMENT

Over thirty-five tons of vanilla beans were reported afloat from Madagascar. It is the first direct shipment of beans from Madagascar to the United States in over two years. Another steamer will probably load sufficient quantities aboard to complete the entire export quota for the United States as recently established by the French Colonial Government since it is understood that the quota had already been oversubscribed by more than a hundred tons.

Practically every shipment of Bourbon beans that has arrived here has gone out directly to consumers—thus the spot position promises to remain firm for quite some time to come.

ISOPROPYL ALCOHOL

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SHAMPOOS: Isopropyl Alcohol aids in cleaning hair and scalp thoroughly and in leaving hair soft and lustrous.

HAIR AND SCALP PREPARATIONS: Isopropyl Alcohol as a vehicle for hair and scalp preparations aids the cleansing and antiseptic value of the tonics.

STERILIZING SOLUTIONS: 40% Isopropyl Alcohol will kill dried Bacillus Coli in 1/4 minute. 50% Isopropyl Alcohol is equivalent to 70% ethyl alcohol for killing Bacillus streptococcus and staphylococcus.

BODY RUBS: Isopropyl Alcohol evaporates slowly, thereby prolonging the cooling effect when used in body rubs. Isopropyl Alcohol has no denaturants.

FACE AND HAND LOTIONS: Isopropyl Alcohol evaporates slowly; has little tendency to dry the skin, and aids in keeping the skin soft.

AFTER SHAVE LOTION: Isopropyl Alcohol is excellent for this product because it aids the after-cooling and skin-freshening qualities of the lotion.

Use 91% Isopropyl Alcohol and Release War Materials

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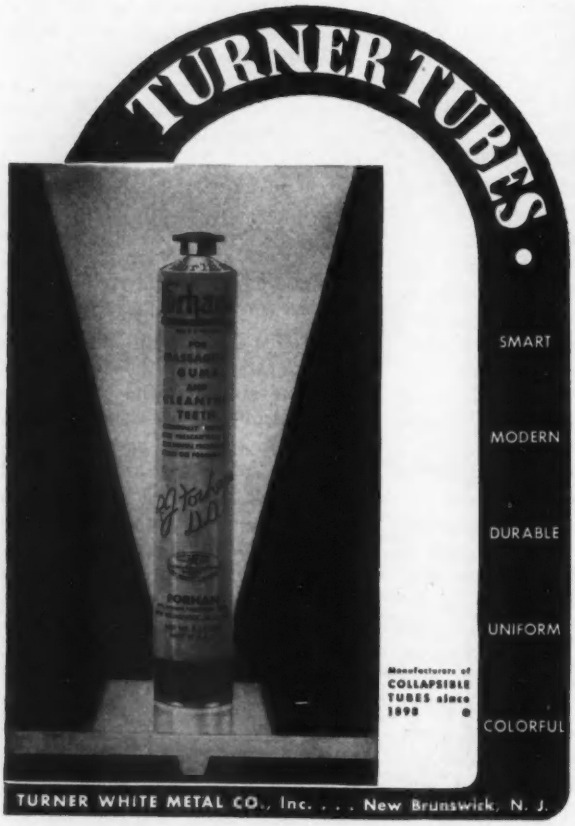

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Almond Bit, per lb.	3.50@	4.00
F. P. A.	5.00@	5.50
Sweet True	1.30@	1.50
Apricot Kernel	.50	Nom'l
Amber, rectified	2.25	Nom'l
Angelica Root	125.00@	150.00
Anise, U. S. P.	4.00	Nom'l
Imitation	1.75@	2.10
Aspic (spike) Span.	3.00@	3.75
Avocado	1.05@	1.25
Bay	1.50@	1.75
Bergamot	12.00@	12.50
Artificial	4.00@	9.25
Birch, sweet	2.75@	5.00
Birchtar, crude	2.25	Nom'l
Birchtar, rectified	4.25	Nom'l
Bois de Rose	5.75	Nom'l
Cade, U. S. P.	.90@	1.20
Cajeput	2.35@	3.00
Calamus	22.50@	35.00
Camphor "white," dom.	.25@	.30
Cananga, native	12.75@	13.00
Rectified	15.00@	16.25
Caraway	20.00@	22.00
Cardamon	21.00@	25.00
Cassia, rectified, U. S. P.	12.00	Nom'l
Imitation	3.75@	
Cedar leaf	1.10@	1.25
U. S. P.	2.65@	3.34
Cedar wood	1.00@	1.25
Celery	16.75@	18.00
Chamomile	150.00	Nom'l
Cinnamon bark oil	32.50@	35.00
Citronella, Ceylon	1.85@	2.00
Java	3.25	Nom'l
Cloves, Zanzibar	1.80@	1.85
Coriander	30.00@	32.00
Imitation	12.00@	14.00
Croton	4.25@	4.80
Cumin	9.00@	11.00
Dillseed	8.00	Nom'l
Erigeron	2.25@	5.00
Eucalyptus	1.30@	1.45
Fennel, Sweet	4.00	Nom'l
Geranium, Rose, Algerian	15.50@	17.00
Bourbon	16.50@	18.00
Turkish	5.00@	5.80
Ginger	17.50@	18.00
Guaiac (Wood)	4.00@	4.80
Hemlock	2.65@	3.34
Substitute	.55@	.60
Juniper Berries	12.50@	16.00
Juniper Wood, imitation	1.00@	1.25
Laurel	5.00	Nom'l
Lavandin	8.25	Nom'l
Lavender, French	17.00@	17.50
Lemon, Calif.	3.25	Nom'l
Lemongrass	2.50@	3.00
Limes, distilled	7.50@	8.00
Expressed	13.50@	15.00
Linaloe	4.00@	4.15
Lovage	95.00	Nom'l
Marjoram	7.25@	7.50
Neroli, Bigarde P.	300.00@	375.00
Petale, extra	265.00@	300.00
Olibanum	5.00@	5.75
Opopanax	30.00@	38.00
Orange, bitter	3.90@	3.95
Brazilian	1.50@	1.65
Calif., exp.	2.00@	
Orris Root, abs. (oz.)	135.00@	
Artificial	36.00@	40.00
Pennyroyal, Amer.	3.50@	3.80
European	4.10	Nom'l
Peppermint, natural	6.75@	7.00
Redistilled	7.10@	7.50
Petitgrain	2.25@	2.50
Pimiento	7.50@	8.00
Pinus Sylvestris	4.25@	5.00
Pumillonis	4.25@	4.75
Rose, Bulgaria (oz.)	30.00@	40.00
Synthetic, lb.	45.00@	55.00
Rosemary, Spanish	1.45@	1.60
Sage	3.00@	3.50
Sage, Clary	25.00@	30.00
Sandalwood, N. F.	7.00@	7.25
Sassafras, natural	2.00@	2.15
Artificial	.90@	1.10
Snake root	12.00	Nom'l
Spearmint	4.00	Nom'l
Thyme, red	2.75@	3.00
White	3.05@	3.80
Valarian	40.00	Nom'l
Vetivert, Java	50.00	Nom'l
Bourbon	30.00@	32.00
Wintergreen	4.85@	8.50
Wormseed	5.25	Nom'l
Ylang Ylang, Manila	38.00	Nom'l
Bourbon	13.00@	20.00

(Continued on page 101)

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100 lbs., 5½¢/lb.; 600 lbs., 5¢/lb.

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100 lbs., $5.00; 250 lbs., $10.00.

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(Continued from page 99)

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Grapefruit	65.00@	
Lavender	28.00	Nom'l
Lemon	45.00	Nom'l
Lime, ex.	80.00@	100.00
Distilled	60.00@	67.00
Orange sweet	65.00@	112.00
Peppermint	13.35@	14.00
Petitgrain	3.50@	3.75
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Acetaphenone	1.70@	1.80
Alcohol C 8	7.50	Nom'l
C 9	14.00	Nom'l
C 10	7.75@	12.00
C 11	11.50	Nom'l
C 12	7.20@	8.50
Aldehyde C 8	22.50@	28.00
C 9	32.00	Nom'l
C 10	22.00@	29.00
C 11	22.00	Nom'l
C 12	25.00@	30.00
C 14 (so called)	9.25@	9.75
C 16 (so called)	7.65@	8.25
Amyl Acetate	.55@	.75
Amyl Butyrate	.90@	1.10
Amyl Cinnamate	4.50@	5.80
Amyl Cinnamate Aldehyde	2.75@	5.00
Amyl Formate	1.00@	1.50
Amyl Phenyl Acetate	3.75@	4.00
Amyl Salicylate	.80@	1.00
Amyl Valerate	2.10@	2.75
Anethol	3.50	Nom'l
Anisic Aldehyde	3.35@	4.00
Benzophenone	1.15@	1.30
Benzyl Acetate	.75	Nom'l
Benzyl Alcohol	1.85	Nom'l
Benzyl Benzoate	1.10	Nom'l
Benzyl Butyrate	2.15	Nom'l
Benzyl Cinnamate	5.15	Nom'l
Benzyl Formate	2.50@	3.75
Benzyl-Iso-eugenol	10.25	Nom'l
Benzylidenacetone	2.25@	3.40
Borneol	1.80	Nom'l
Bornyl Acetate	2.25	Nom'l
Bromstyrol	6.25@	
Butyl Acetate	.18⅝@	.19
Cinnamic Acid	3.75@	4.50
Cinnamic Alcohol	3.65@	3.85
Cinnamic Aldehyde	2.65@	3.90
Cinnamyl Acetate	10.50@	12.00
Cinnamyl Butyrate	12.00@	14.00
Cinnamyl Formate	10.00@	13.00
Citral, C. P.	6.00@	6.75
Citronellol	6.50@	7.00
Citronellyl Acetate	8.60@	9.20
Coumarin	3.00@	3.50
Cuminic Aldehyde	8.00@	11.25
Diethylphthalate	.24	Nom'l
Dimethyl Anthranilate	4.55@	5.00
Ethyl Acetate	.25@	.35
Ethyl Anthranilate	5.50@	7.00
Ethyl Benzoate	.90@	1.15
Ethyl Butyrate	.75@	.90
Ethyl Cinnamate	3.50	Nom'l
Ethyl Formate	.75@	.95
Ethyl Propionate	.80	Nom'l
Ethyl Salicylate	.90@	1.00
Ethyl Vanillin	5.25@	6.00
Eucalyptol	3.00	Nom'l
Eugenol	3.30@	3.50
Geraniol, dom.	5.75@	6.00
Geranyl Acetate	4.00	Nom'l
Geranyl Butyrate	8.50	Nom'l
Geranyl Formate	13.40	Nom'l
Heliotropin, dom.	6.50	Nom'l
Hydrotopic Aldehyde	15.00@	18.00
Hydroxycitronellal	8.50	Nom'l
Indol, C. P.	23.00@	26.50
Iso-borneol	1.10	Nom'l
Iso-butyl Acetate	1.25@	2.00
Iso-butyl Benzoate	1.50@	2.60
Iso-butyl Salicylate	2.70@	3.00
Iso-eugenol	4.00	Nom'l
Iso-safrol	3.00	Nom'l
Linalool	9.00	Nom'l
Linalyl Acetate 90%	8.75@	9.00
Linalyl Anthranilate	15.00@	
Linalyl Benzoate	10.50@	
Linalyl Formate	9.25@	12.00
Menthol, Brazilian	4.50@	5.00
Methyl Acetophenone	1.80	Nom'l
Methyl Anthranilate	2.25@	2.40
Methyl Benzoate	.60@	1.00
Methyl Cellulose, f.o.b. shipping point	.60	Nom'l
Methyl Cinnamate	3.00	Nom'l
Methyl Eugenol	3.50@	6.75
Methyl Heptenone	3.50	Nom'l
Methyl Heptine Carbonate	45.00@	60.00
Methyl Iso-eugenol	5.85@	10.00
Methyl Octine Carbonate	24.00@	30.00
Methyl Paracresol	2.50	Nom'l
Methyl Phenylacetate	3.50@	4.00
Methyl Salicylate	.37@	.38
Musk Ambrette	4.25@	4.50
Ketone	4.35@	4.80
Xylene	1.65@	2.50
Neroline (ethyl ether)	2.00@	3.15
Paracresol Acetate	2.55@	3.00
Paracresol Methyl Ether	2.60@	2.85
Paracresol Phenyl-acetate	6.50@	8.50
Phenylacetaldehyde 50%	3.00	Nom'l
100%	5.00	Nom'l
Phenylacetic Acid	3.00@	3.75
Phenylethyl Acetate	2.50	Nom'l
Phenylethyl Alcohol	2.80@	3.00

(Continued on page 103)

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(Continued from page 101)

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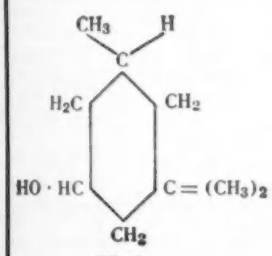

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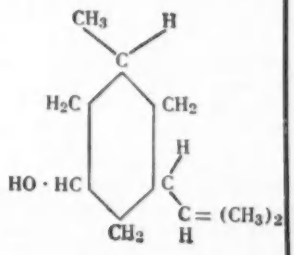

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INDEX TO ADVERTISERS

Allied Products, Inc. ... 15
Aluminum Seal Company ... —
American Cholesterol Products, Inc. ... 105
Ansbacher-Siegle Corp. ... —
Aromatic Products, Inc. ... —
Atlantic Refining Co., The ... —
Baker & Bros., H. J. ... —
Bender Corp., The ... 101
Bopf-Whittam Corporation ... —
Braun Co., W. ... 96
Bridgeport Metal Goods Mfg. Co., The 84
Broder, Harry ... 32
Bush & Co., Inc., W. J. ... 1, 105
Bush Aromatics, Inc. ... 88
California Fruit Growers Exchange ... 40
Camax Company, The ... —
Carr-Lowrey Glass Co. ... 4
Chiris Co., Inc., Antoine ... 33
Classified Advertisements ... 106, 107
Consolidated Fruit Jar Co. ... 105
Consolidated Products Co., Inc. ... 106
Continental Chemical Co. ... 94
Cortizas, M. & Co. ... 58
Cosmetries, Inc. ... —
Cosmia Laboratories ... 105
Creative Printmakers Group ... 105
Danco, Inc., Gerard J. ... 99
Dodge & Olcott, Inc. ... 5
Dow Chemical Co., The. Inside Back Cover, 59
Dreyer, Inc., P. R. ... 103
Drury & Co., Inc., A. C. ... 25
du Pont de Nemours & Co., E. I. ... 74
Duval, Compagnie (Div. of S. B. Penick & Co.) ... —
Emulsol Corp., The ... —
Evans Chemetics, Inc. ... 8
Evans Chemicals, Limited ... 8
Felton Chemical Co., Inc. ... 67
Fezandie & Sperrle, Inc. ... 100
Firmenich & Co. ... Back Cover
Florasynth Laboratories, Inc. ... 17
Fontaine Products Corp. ... —
Forster, René ... 92
Fraser, Morris & Co. ... —
Freeman, John ... 100
French, Inc., Benj. ... 83
Fritzsche Bros., Inc., Insert Pages 9-10-11-12
Furlager Mfg. Co., Inc. ... 20
General Drug Co. ... 60
Givaudan-Delawanna, Inc., Insert Pages 68, 69
Glass Industries, Inc. ... 29
Glycerine Producers Association ... 16
Glyco Products Co., Inc. ... —
Goldschmidt Corp., The ... 18
Gunning & Gunning ... 90
Hazel-Atlas Glass Co. ... —
Helfrich Laboratories, Inc. ... 3
Heyden Chemical Corp. ... —
Hopkins & Co., J. L. ... 81
Horn, John ... 100
Horner, Inc., James B. ... —
House of Hollywood ... 103
Innis, Speiden & Company ... 88
Interstate Color Co. ... 102
Kelton Cosmetic Co. ... 85
Kiefer Machine Co., The Karl ... —
Kimble Glass Co. ... 36
Koster-Keunen Mfg. Co., Inc. ... 90
Krause, Richard M. ... 102
Lachman-Novasel Paper Co. ... 96
Laco Products, Inc. ... —
Lanaetex Products Sales Co. ... 102
Lautier Fils, Inc. ... 94
Leeben Chemical Co., Inc. ... 57
Leonhard Wax Co., Inc., Theodor ... 104
Lueders & Co., George ... 2
MacHale, Inc., Ann J. ... 96
Magnus, Mabee & Reynard, Inc. ... 14
Malmstrom & Co., N. I. ... 62
Maryland Glass Corp. ... —
Merck & Co., Inc. ... —
National Sawdust Co., Inc. ... 100
Naugatuck Aromatics ... 30
New England Collapsible Tube Co. ... 38
Norda Essential Oil & Chemical Co., Inc. ... 19
Northwestern Chemical Co., The ... 87
Parento, Inc., Compagnie ... 64
Paris Cosmetics, Inc. ... 23
Parsons, M. W. ... 91
Penick & Co., S. B. ... 76
Pennsylvania Refining Co. ... 31
Pfaltz, Harry E. ... 89
Polak & Schwartz, Inc. ... 24
Powell & Co., Inc., John ... 95
Remus & Co., Inc., Edward ... 86
Revson Co., R. F. ... 104
Richford Corp. ... 92
Ritchie & Co., W. C. ... 70
Roure-Du Pont, Inc. ... 26
Schimmel & Co., Inc. ... 34
Seeley & Company ... 102
Sherwood Refining Company, Inc. ... 93
Sierra Talc Co. ... —
Sparhawk Co. ... 82
Standard Alcohol Co. ... 98
Standard Specialty & Tube Co. ... —
Stanton Laboratories ... 100
Summit Chemical Products Corp. ... —
Swindell Bros. ... 13
Synfleur Scientific Laboratories, Inc. ... 28
Syntomatic Corp. ... 27
Taylor Chas. T., & Co. ... 94
Thurston & Braidich ... —
Tombarel Frères ... 108
Tombarel Products Corp. ... 108
Turner White Metal Co., Inc. ... 98
Ungerer & Co. ... Inside Front Cover
U. S. Industrial Chemicals, Inc., Insert Pages 79, 80
van Ameringen-Haebler, Inc. ... 6, 7
Vanderbilt Co., Inc., R. T. ... 98
Van Dyk & Co., Inc. ... 72
Verley and Company, Albert Insert Pages 21, 22
Voss Corporation, Karl ... 86
Whittaker, Clark & Daniels, Inc. ... 82
Will & Baumer Candle Co., Inc. ... 108
Wirz, Inc., A. H. ... Front Cover

CLASSIFIED ADVERTISEMENTS (Cont'd)

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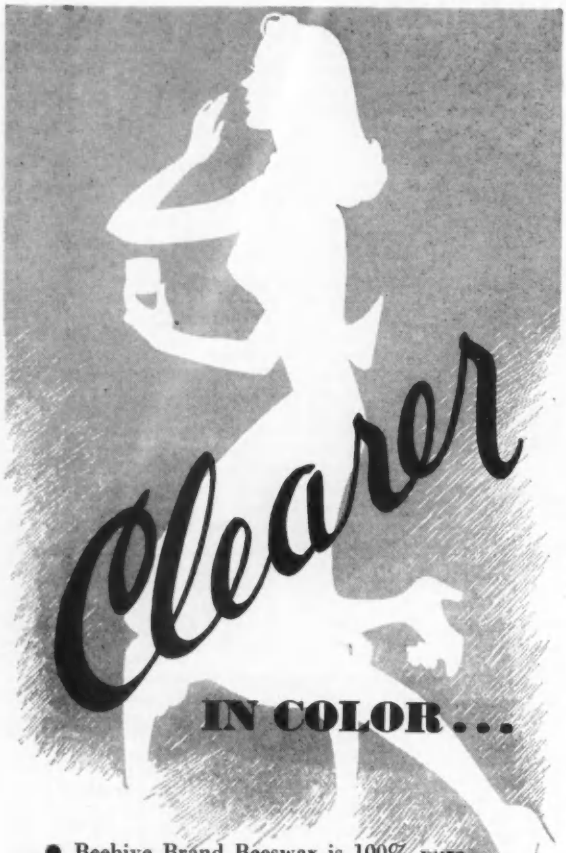

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- **SPECIAL PERFUME CREATIONS**

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The Chemical Nature of the Violet Odor

The discovery of the ionones on the mistaken formula for the orris ketone irone . . . The progress and developments in the preparation of violet odors . . . Startling relation of the ionones to the carotenoids and vitamin A

by EVERETT SAUL, Ph. D.*

INSTEAD of discussing the so-called violet ketones under separate headings, the author considers the chronological history of their development of sufficient interest to present them in their naturally interrelated story.

The story of the ionones is possibly the history of a new era in perfumery. It signifies the change from the use of purely natural products to the additional application to perfumes, of synthetic chemicals. The science of chemistry had begun to work hand in hand with the perfumer. Typically perhaps, the ionones were discovered on the mistaken formula for irone, but the mistake has been a never ending source of gratitude for the perfumer, and what is more important, inaugurated the development of hundreds of new and interesting synthetic chemicals for the art.

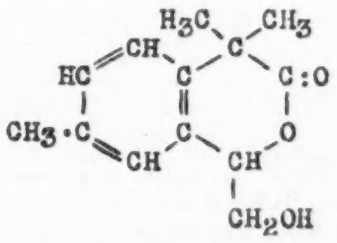
Tiemann while working in the laboratories of the University of Berlin, had for some years interested himself in isolating the chemical which appeared to be chiefly responsible for the violet odor and ultimately, to investigate its chemical nature. In 1893, G. de Laire and Tiemann[1] published an account of work they had done on the constitution of a new glycoside iridin, which they isolated from the rhizomes of the Iris florentina. The rhizomes of the iris, infusions of which were used to simulate the perfume of the violet, are commonly known as orris root, but strictly speaking, a rhizome is any underground root-like stem, sending up leafy shoots from the upper surface and emitting roots from the lower side. Tiemann and de Laire conjectured that the most probable place to search for the new chemical would be in a glycoside. Their reasoning was analogical. Past experience had revealed that benzaldehyde could be obtained by hydrolysis of the glycoside amygdalin, salicylaldehyde from salicin and vanillin from coniferin. Unhappily their investigations and results failed to lead them any nearer to their ultimate goal. In no way did iridin or its derivitives and degradation products resemble irone which was identified shortly after that time.

The reader may be curious to know why the essential oil of the iris was chosen for examination rather than the more obvious essential oil derived from the sweet violet (Viola odorata, Linn.). Orris root was fairly expensive but a common article of commerce, and believed to possess the same essential odor character as the violet. On the other hand, the essential oil of the violet, or violet absolute, was rarely employed in practical perfumery because of its extreme cost. As a matter of fact, von Soden[2] in 1904, investigating the essential oil of the sweet violet, obtained 31 grams of oil from 2200 pounds of flowers, a yield of about 0.003%! Indeed, von Soden commented that in spite of Tiemann's work on irone and the ionones, the composition of violet flower oil remained unknown. Thirty-four years went by before we even learned the empirical formula of "parmone."

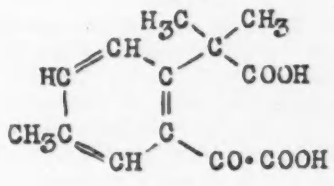
THE DISCOVERY OF IRONE

Feeling that the university laboratories were not the most expedient for his research, Tiemann associated himself with the firm of Haarmann and Reimer in Holzminden, Germany. Here he had available the necessary facilities, an interested support, and the raw material. In 1893 Tiemann and Krüger[3] extracted the rhizomes of the iris with ether, separated the relatively large quantities of myristic acid present, removed the solvent and steam-distilled the residual matter. A ketone was demonstrated to be present in the volatile product, and was called irone. They purified the irone by converting it to the phenylhydrazone which was ultimately hydrolysed in the presence of dilute mineral acid and steam-distilled. From 100 Kg. of rhizomes, about 8-9 grams of irone were obtained.

From analyses of the oil, they found the empirical formula $C_{13}H_{20}O$ (a formula which was later to be chal-



(dehydroirenoxylactone)
(I)



(irigenondicarboxylic acid)
(II)

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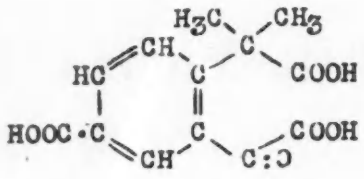
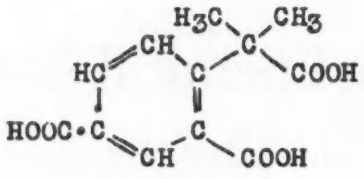
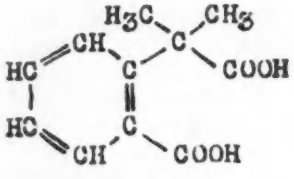


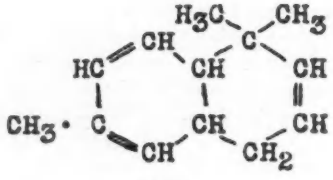
(irigenonetricarboxylic acid)
(III)



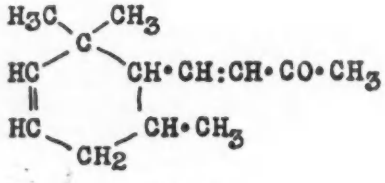
(ionirigentricarboxylic acid)
(IV)



(dimethylhomophthalic acid)
(V)



(irene)
(VI)



(irone)
(VII)

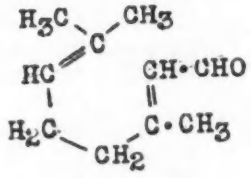
lenged), and determined the following physical constants: b.p. 144°/16 mm., d 20° 0.939, α_D + 33.31°, n 20°/D 1.50113, oxime m.p. 121.5° In April of the same year the firm of Haarmann and Reimer[4] patented the isolation and purification of irone.

WORK ON CHEMICAL STRUCTURE

Having isolated irone, the next step was to determine its chemical structure. Treatment with sodium hypochlorite resulted in the formation of chloroform, indicating that the substance was a methyl ketone having the grouping $R \cdot CO \cdot CH_3$. When irone was heated in the presence of hydrogen iodide and red phosphorus, a hydrocarbon was formed and to which the empirical formula $C_{13}H_{18}$ was assigned. Permanganate and chromate oxidation studies on this hydrocarbon which was called irene, yielded a series of products (shown above) which were isolated and identified.

On the basis of these degradation studies, Tiemann and Krüger assigned to irene formula (VI).

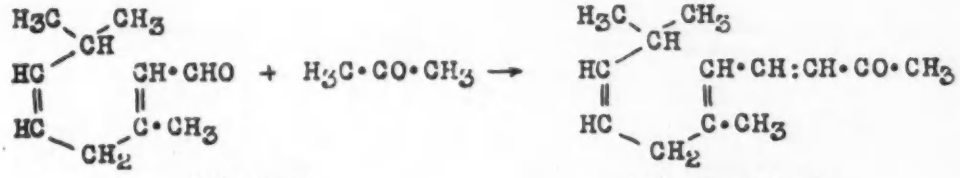
They concluded therefore that it was formed by dehydration and ring closure of irone (VII).



(citral)
(IX)

In order to substantiate their conclusions, they attempted to synthesize irone. They reasoned that if citral were condensed with acetone, a product (VIII) would be formed having the same empirical formula as irone. In order to avoid confusion, it must be stated here that the accepted formula for citral at the time Tiemann proposed the synthesis of irone, was in error. In fact Tiemann saw

that the probable structure of the ionone he finally obtained presented some difficulty when he tried to explain it on the basis of its synthesis on one hand and on the nature of ionone degradation products on the other. He[5] therefore set out to reexamine the structure of citral and stated that pseudoionone did not yield the characteristic sodium bisulphite addition-compound, and that the phenylhydrazone and oxime were viscous oils unsuited for its purification. Like citral, the ketone showed a great tendeny to undergo cyclisation. The odor of pseudoionone



(early erroneous formula for citral)

(early erroneous formula for pseudoionone)
(VIII)

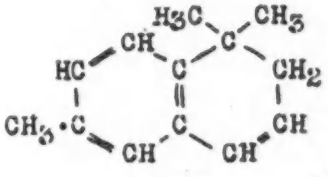
gave us the formula (IX) which is accepted today.

We shall, however, present the equations as Tiemann was at first forced to conceive them.

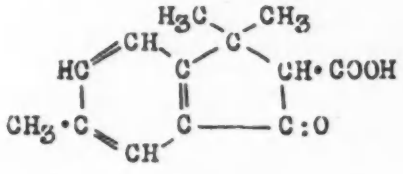
To effect this condensation, equal weights of citral and acetone were shaken with a saturated aqueous solution of barium hydroxide for several days. The reaction mass was extracted with ether and the extract freed from the solvent and distilled at 12 mm., collecting the fraction boiling within the range 138-155°. Citral which was still present in considerable quantities was more completely removed by gentle steam-distillation. The final so-called pseudoionone was obtained, having the constants, b.p. 143-145°/12 mm., d 0.9044, n 1.5275. At this time it was was weak and totally unlike that of irone.

THE DISCOVERY OF IONONE

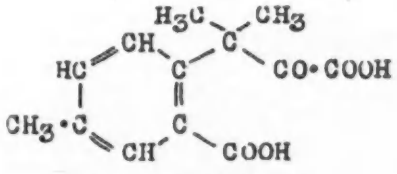
The next step was to close the pseudoionone ring. A mixture of 20 parts of pseudoionone, 100 parts of water, 100 parts of glycerine and 2.5 parts of sulphuric acid was heated in an oil bath for several hours at its boiling-point. After extraction with ether, ionone was obtained by fractionation. The following properties were recorded: b.p. 126-128°/12 mm., d 20° 0.9351, n 20°/D 1.507. A new ketone had been discovered and irone had still to be synthesized. The odor of this product was stated to be quite similar to that of irone, especially when highly diluted.



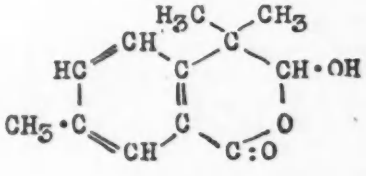
(dehydroionene)
(X)



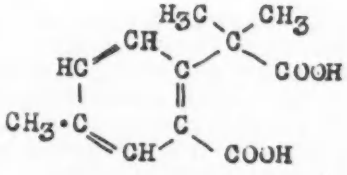
(ionegenogonic acid)
(XI)



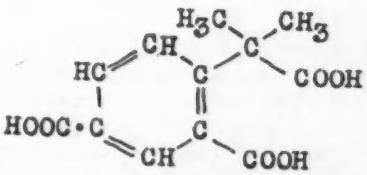
(ionegenondicarboxylic acid)
(XII)



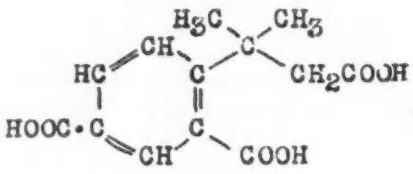
(ionegenalide)
(XIII)



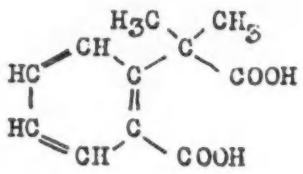
(ionegendicarboxylic acid)
(XIV)



(ionirigentricarboxylic acid)
(IV)

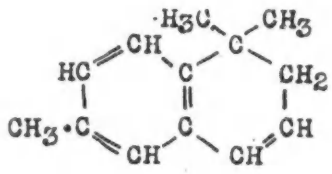


(beta-(2, 4-dicarboxylphenyl)-isovaleric acid)
(XV)



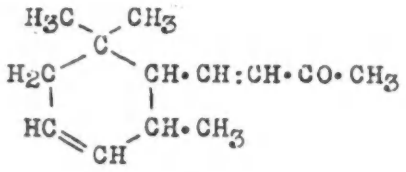
(dimethylhomophthalic acid)
(V)

Ionone like irone yielded a hydrocarbon which was called ionene. Oxidation studies gave a series of products and ultimately the same end products (IV) and (V) which had been isolated during the degradation of irene.



(ionene)
(XVI)

with methyl ethyl ketone, respectively. The following examples were given: equal parts by weight of citral and methyl ethyl ketone were shaken for several days in the presence of dilute sodium hydroxide. After extraction with ether, and removal of the latter, the crude product was steam-distilled to eliminate the excess methyl ethyl ketone and most of the unreacted citral. The methyl pseudoionone was distilled at 21.5 mm., taking the fraction boiling between 160-175°. In the presence of 3 per cent aqueous sulphuric acid at about 102°, the methyl pseudoionone was converted to methylionone boiling at 155-160°/24 mm. It is mentioned that the condensation of citral with the higher molecular weight homologues is slower than with acetone. The preparation of dihydroionone is also given. This product was formed by starting with dihydrocitral. Dihydropseudoionone is reported to boil at 153-156°/24 mm. and dihydroionone at 136°/23.5 mm.



(ionone)
(XVII)

On the basis of these degradation studies, Tiemann and Krüger assigned to ionene formula (XVI).

Ionone they therefore looked upon as being represented by formula (XVII).

Tiemann therefore considered irone and ionone as two isomeric ketones whose odors and properties were closely related and whose difference was concerned with the position of an olefinic link in the ring system.

FIRST IONONE PATENT

On January 1, 1894, a patent was granted to Haarmann and Reimer[6] on the preparation of the new perfume chemical ionone, by the condensation of citral and acetone to pseudoionone and the cyclisation of the latter by means of dilute mineral acid.

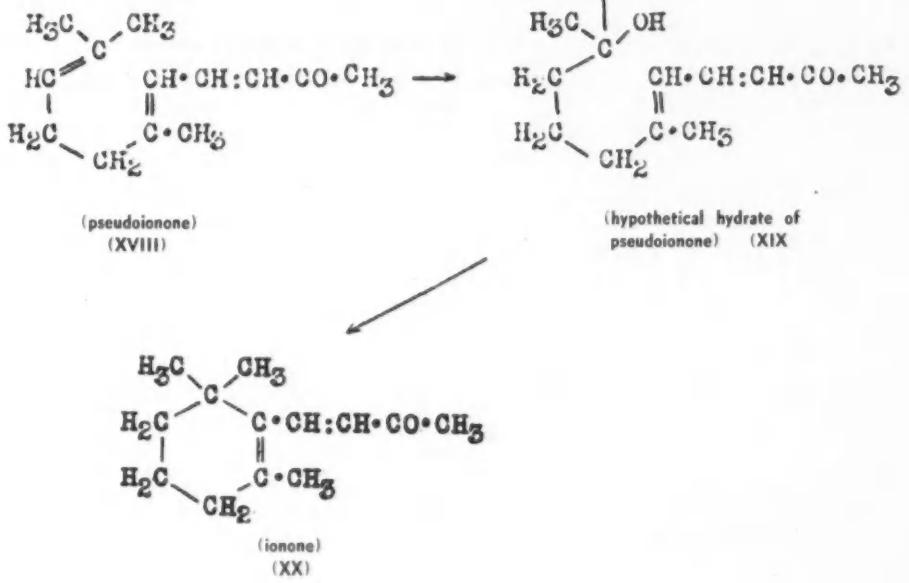
It must soon have been apparent to Tiemann that homologues of acetone might also be condensed with citral to form ionones which would have merit as perfume materials. In fact some four months after publication of the ionone patent, another was issued to Haarmann and Reimer[7] in which was described the preparation of the new perfume chemicals, dihydroionone and methylionone, by the condensation of dihydrocitral with acetone and citral

In 1895 Tiemann and Krüger[8] published a study of some derivatives of ionone and irone in order to be able to precisely identify these ketones. Their studies were motivated by three considerations: (1) to protect existing patents (2) to detect sophistication of irone (3) to determine the presence of these ketones in raw materials and plant substances.

The preparation of ionone-semicarbazone took place readily in acetic acid solution and after crystallization

from a benzene-lingroin mixture, melted at 109-110°. Irone-semicarbazone proved to be an oil and it was therefore possible from a mixture of ionone and irone, to separate the crystals of the ionone-semicarbazone.

Ionone-p-bromphenylhydrazone was reported to soften at 134° and then melt at 140-145°. On cooling, the melted solid rapidly crystallized. The behavior of irone-p-bromphenylhydrazone was similar to that of the ionone derivative insofar as it softened at 156° and melted at 168-170°. It also crystallized immediately on cooling.



(pseudoionone) (XVIII)

(hypothetical hydrate of pseudoionone) (XIX

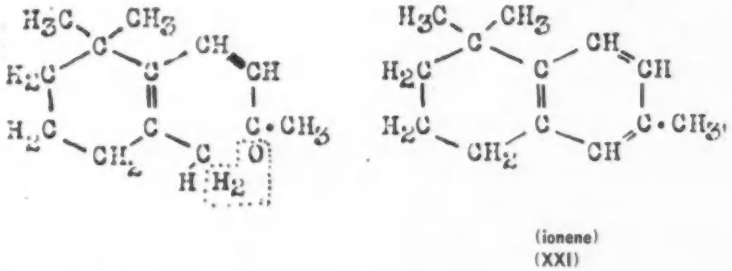
(ionone) (XX)

The authors stated that the p-bromphenylhydrazone-derivatives might be used for quantitative determinations and further, that analyses of the ionone and irone derivatives indicated the identity of the two empirical formulae. The identity of the empirical formulae of ionone and irone was later disputed by Ruzicka.

In 1896 Barbier and Bouveault[9] reported that they had prepared Tiemann's ionone, obtaining a yield of 25 per cent based on pure citral. They regarded the formation of ionone as a simple dehydration according to the scheme shown at the top of the page.

Hence, from the point of view of these authors, ionene resulting from the dehydration of (XX) should be represented by (XXI).

These authors, however, presented no evidence or data to support their claims. Tiemann argued that their scheme of reaction mechanism was contrary to certain facts, namely, that the ionene so conceived would be a derivative of tetrahydronaphthalene or tetralin, a structure which experience had demonstrated to be stable toward oxidation and substitution. Tiemann claimed that ionene added bromine readily and was extremely susceptible to oxidation, and in general exhibited typical cyclic terpene behavior. Barbier and Bouveault, nevertheless, could logically explain the formation of dimethylhomophthalic acid (V),



(ionene) (XXI)

one of the end products in the degradation of ionone. Later work on the structure of ionene seemed to prove that the Frenchmen had guessed correctly.

In 1896 the firm of Franz Fritzsche[10] was granted a patent for a process to manufacture an artificial violet perfume material, a material which contained ionone. The process is described as being characterized by its simplicity and cheapness. Citral or lemongrass oil is condensed with acetone in the presence of an aqueous alcoholic solution of calcium hypochlorite or barium oxide and small amounts of cobaltic nitrate. The transformation of the pseudoionone thus formed, to ionone, is brought about by means of an aqueous solution of ferric chloride or arsenic acid. The patent is not altogether clear nor are the final products identified in any way.

In 1898, Ziegler[11] working on the laboratories of Franz

Fritzsche, published an article in which he claimed a new ionone, prepared according to the method described in the previously mentioned patent. He reported the following constants: b.p. 140-150°/12 mm., sp. gr. 15/15 0.952, n 20/D 1.512, semicarbazone m.p. 142°, p-bromphenylhydrazone m.p. 146°. These constants of course differed from those previously described by Tiemann for ionone. However, in 1903, in a Haarmann and Reimer[12] patent, showing that lemongrass oil could be employed as well as purified citral in the formation of pseudoionone and ionone, it was demonstrated that what Ziegler claimed as a new ionone, having a higher boiling-point and specific gravity, was actually a mixture of alpha- and beta-ionones in which the latter predominated.

After Tiemann's revision of the citral formula (IX) he was able to assign the correct structure to pseudoionone (XVIII). He now investigated[13] the properties of pseudoionone more rigorously. He found that it steam-distilled only with difficulty, it polymerized readily and strong acids and especially alkalies caused it to resinify. He discovered, contrary to previous observations, that pseudoionone did form a bisulphite addition-compound. However, to do so he found it necessary to reflux the aliphatic ketone with about twice its weight of 17 per cent aqueous sodium bisulphite solution for several hours. The water soluble product could be purified by extraction and subsequent regeneration by means of alkalies. Samples regenerated from its addition-compound possessed varying constants as shown in Table I.

Table I

Showing the physical properties of pseudoionones regenerated from their bisulphite addition-compounds.

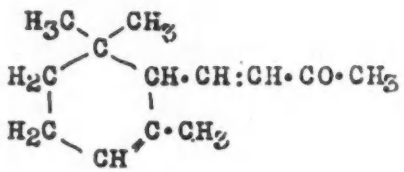
Sample	Boiling-point	sp.gr. 20/20	n 20/D
1	141-142.5°/10.5 mm.	0.8980	1.53155
2	141-143°/11.5 mm.	0.8980	1.52868
3	141-145°/12 mm.	0.8984	1.53346

The oxime and phenylhydrazone derivatives were not suitable for its isolation, the former being too liquid and both producing considerable amounts of nitrogenous products, when treated with acid reagents. The semicarbazone, however, was readily hydrolysed and melted sharply at 142°. Pseudoionone purified by fractional distillation had the properties: b.p. 143-145°/12 mm., sp.gr. 20/4 0.9044, n 20/D 1.5275, while the ketone regenerated from its semicarbazone gave, b.p. 146-148°/12 mm., sp. gr. 20/4 0.898, n 20/D 1.5274. Tiemann now revised his formula for ionone (XXII, see XVII) in accordance with the corrected scheme for the structure of pseudoionone.

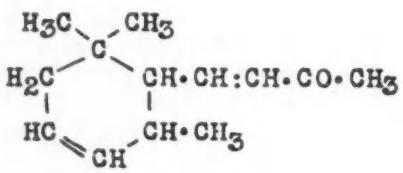
Tiemann saw that if irone and ionone differed only in the position of the nuclear olefinic link, then two other isomeric ketones were possible (XXIII and (XXIV).

ATTEMPTS TO ISOMERIZE IONONE

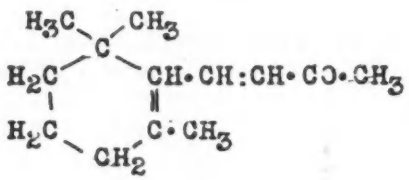
Under the conditions he imposed, however, Tiemann noted that when either pseudoionone or ionone itself was treated with acidic reagents, the same ionone was always formed or remained unchanged. In fact many attempts were made to discover whether ionone could be isomerized to what was considered irone for example. All of these experiments were apparently unsuccessful. Tiemann had yet to investigate the two forms of ionone produced during its manufacture, namely alpha- and beta-ionone.



(ionone)
(XXII)



(XXIII)



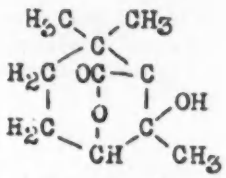
(XXIV)

DISCOVERY OF ALPHA AND BETA IONONES

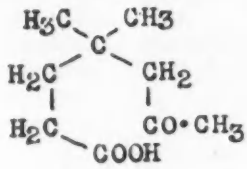
Edgar de Laire[14] in a patent issued in 1898, using concentrated sulphuric acid as the condensing agent, prepared from pseudoionone an ionone which formed a semicarbazone only with some difficulty and whose melting-point was higher than heretofore reported. Tiemann investigated the process and product and at first thought that the action of the concentrated acid had brought about a shift in the position of the nuclear olefinic link, yielding an isomeric ketone. Yet according to Tiemann the structure of the new chemical was identical to that of the usual ionone. He found furthermore that commercial ionones were always mixtures of the two forms. He named the new isomer isoionone, finding it different only in the nuance of odor rather than in essential character. Later he concluded that the two ionones bore the relation of cis and trans to each other and thereafter called them alpha- and beta-ionones, a nomenclature which they have retained to the present time.

Tiemann at first separated the alpha- and beta-ionones by preparing their semicarbazones. The beta-derivative was more soluble in water. He reported the following physical data for each purified ionone: beta-ionone, b.p. 127-128.5°/10 mm., 134-135.5°/14.5 mm., 140°/18 mm., d 17° 0.946, n 20/D 1.521, semicarbazone m.p. 148-149°, p-bromphenylhydrazone, m.p. 115-116°; alpha-ionone, b.p. 123-124°/11 mm., 134-136°/17 mm., d 20° 0.932, n 20/D 1.4980, semicarbazone m.p. 107-108°, p-bromphenylhydrazone m.p. 142-143°.

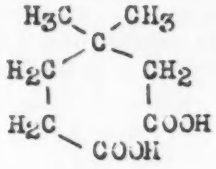
At this time, attempts to distinguish between the two forms by oxidation studies were, according to Tiemann unsuccessful because the degradation proceeded too far. The products identified are given above.



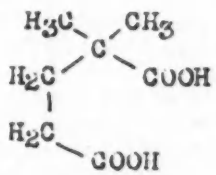
(oxyionolactone)
(XXV)



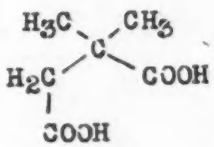
(isogeronic acid)
(XXVI)



(3,3-dimethyl adipic acid)
(XXVII)

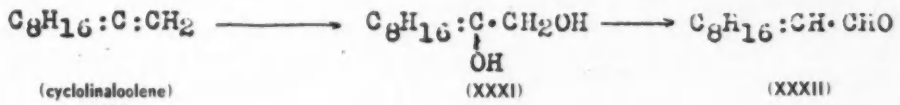


(1, 1-dimethyl glutaric acid)
(XXVIII)



(1, 1-dimethyl succinic acid)
(XXIX)

after the discovery that the bisulphite addition-compounds of the two isomers exhibited differences in the ease of dissociation, etc. For example, 100 parts of commercial ionone were refluxed with 400 parts of a 25 per cent aqueous solution of sodium bisulphite until the ketones were dissolved. This operation took from 8 to 10 hours, and the unreacted impurities were then extracted. The aqueous solution of the ionone bisulphite addition-compounds was subjected to a rapid steam-distillation whereupon the beta-ionone was liberated and carried over into the distillate. When all of the beta-ionone had been steam-distilled, the residual aqueous solution was made distinctly more alkaline by the addition of sodium carbonate and the liberated alpha-ionone was steam-distilled.



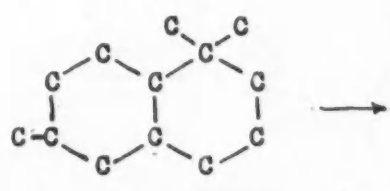
(cyclolinaloolene)
(XXX)

(XXXI)

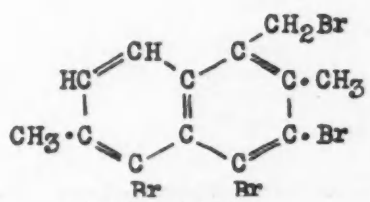
(XXXII)

The commercial separation of alpha- and beta-ionones was finally patented in 1899 by Haarmann and Reimer[15]

In 1899 a patent was issued to Krauth[16] describing the preparation of a so-called dihydroionone and its homo-



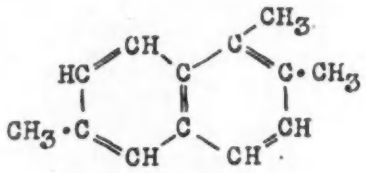
(ionene skeleton)



(tetrabrom-derivative)
(XXXIII)

logues, by the condensation of acetone and the aldehyde prepared from cyclolinaloolene. Krauth[17] claimed that cyclolinaloolene (XXX) when treated with permanganate gave a glycol (XXXI) which by the action of zinc chloride was converted to the aldehyde (XXXII).

It appeared that the formula for linaloolene suggested by Semmler[18] who first prepared it, was later[19] shown to be



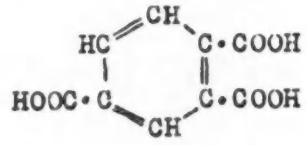
(1, 2, 6-trimethylnaphthalene)
(XXXIV)

dihydromyrcene. In fact the constitution of the latter does not rest on an indisputable basis and casts some doubt on the structure of cyclolinaloolene. Further, the dihydroionone of Krauth's patent is not identified by its physical constants.

In 1899 Baeyer and Villiger[20] attempted to clarify the constitution of ionone by means of exhaustive bromination. Ionene prepared from either the alpha- or beta-ionones was always a single homogeneous substance. From ionene these authors obtained a tetrabrom-derivative (XXXIII) in which a rearrangement of a methyl group had occurred. by reduction of the tetrabrom-naphthalene with sodium amalgam and alcohol they obtained 1,2,6-trimethylnaphthalene (XXXIV) which upon oxidation yielded 1,2,4-trimellitic acid (XXXV).

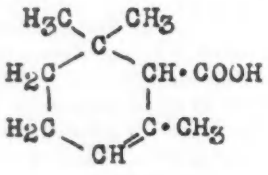
These authors felt that they had substantiated Tiemann's ionene formula (XVI). It is true that they had presented evidence for the ionene skeleton but the position of the olefinic links remained vague.

Tiemann [21] in 1900 published further research on the oxidation of the alpha- and beta-ionones. This reinvestigation was stimulated by the fact that much purer ionones were available, after it had been discovered by Strebel[22] that citralidenecyanacetic acid could be converted to cyclocitralidenecyanacetic acid which when treated with alkali formed cyclocitral. From the crude cyclocitrals, the semicarbazone of the beta-isomer could readily be separated by crystallization. After regeneration of the beta-cyclocitral, the latter when condensed with acetone was almost quantitatively converted to beta-ionone. The following degradation products of the highly purified alpha- and beta-ionones were isolated:

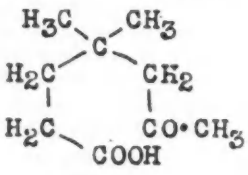


(1, 2, 4-trimellitic acid)
(XXXV)

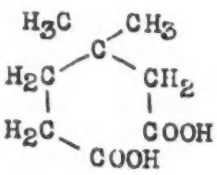
Degradation products from alpha-ionone



(alpha-cyclogeranic acid)
m.p. 106°)
(XXXVI)

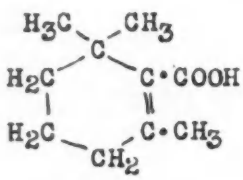


(isogeronic acid, semicarbazone
m.p. 198°)
(XXXVII)

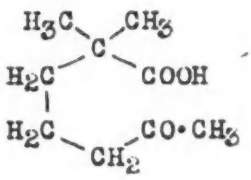


(3, 3-dimethyl adipic acid)
(XXXVIII)

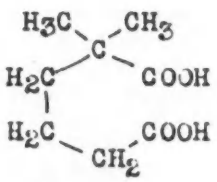
Degradation products from beta-ionone



(beta-cyclogeranic acid,
m.p. 93-94°)
(XXXIX)



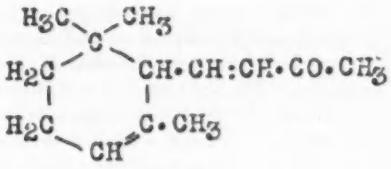
(geronic acid semicarbazone
m.p. 164°)
(XL)



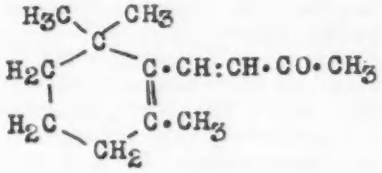
(1,1-dimethyl adipic acid)
(XLI)

From these results it appeared that the formulae for alpha-ionone (XLII) and beta-ionone (XLIII) were quite well established, and indeed have since been accepted.

In 1900 Haarmann and Reimer[23] patented a process for the preparation of ionone by condensing cyclocitral and



(alpha-ionone)
(XLII)

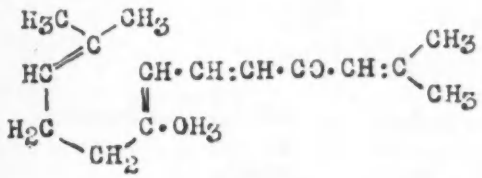


(beta -ionone)
(XLIII)

acetone. As an illustration, 50 parts of crude cyclocitral were condensed with 100 parts of acetone in the presence of sodium ethylate prepared by reacting 5 parts of sodium with the minimum quantity of alcohol. The clear solution was allowed to remain at room temperature for 3 hours. It was then neutralized with tartaric acid and the ionone, chiefly beta-ionone, was steam-distilled and ultimately fractionated in vacuum. In 1902 an addition[24] was made to the above patent showing how the alpha- and beta-homologues of ionone could be produced from the corresponding cyclocitrals.

A year later further improvements were patented[25] on the preparation of alpha-ionone from alpha-cyclocitral. For example, a mixture of 50 parts of alpha-cyclocitral and 100 parts of acetone were heated for 40 hours on a steam-bath in the presence of 10 parts of barium hydroxide. At the same time, more efficient methods had been developed for the preparation and separation of the alpha- and beta-cyclocitrals.

To Durand, Huguenin & Co. and Philippe Barbier[26] a patent was issued in 1901, outlining the preparation of a perfume material called ianthone (XLIV).



(ianthone)
(XLIV)

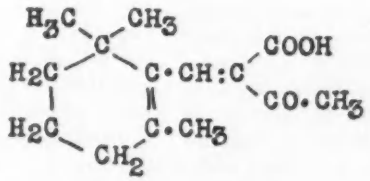
Ianthone is simply the condensation product of citral and mesityl oxide, and is reported to have the following constants: b.p. 185°/10 mm., sp.gr. 20° 0.9156.

THE COSTUS ROOT KETONE

It had been discovered that Costus root (Aplotaxis Lappa, D) contained a ketone which was stated to posses a violet-like odor resembling irone, and closely related to the latter in its chemical nature. The empirical formula $C_{13}H_{20}O$, was identical to what Tiemann considered to be irone. The isolation of this ketone was patented[27] in 1901. Costus root oil was reacted with p-hydrazinobenzenesulphonic acid and after neutralization of the latter, the extraneous material was extracted by means of a suitable solvent. Decomposition of the ketone derivative was then effected by steam-distillation in the presence of phthalic acid. The crude product was finally purified by fractionation in vacuum. The product was called isoirone. Proof of its chemical similarity to irone was assumed after permanganate oxidation had yielded ionirigentricarboxylic acid (IV), melting at 214°. Isoirone was reported to have the constants: b.p. 140-150°/20 mm., d 20° about 0.93. Its p-bromphenylhydrazone melted at 161-163°, about 7° lower than the observed melting-point of the corresponding irone derivative. It is obvious that the material was impure.

The basis of another of the innumerable patents credited to Haarmann and Reimer[28] resided in the discovery that by heating the slightly alkaline aqueous solution of the labile citral-dihydrosulphonic acid, condensation was effected, yielding the corresponding hydrosulphonic acid of pseudoionone. The less stable and unchanged citralbisulphite addition-compund could be induced to liberate citral by increasing the alkalinity at ordinary temperatures. By raising the temperature of the same solution, the pseudoionone separated out as an oil, which might then be converted in any of the usual ways to ionone. It was further discovered[29] and protected by patent, that citral could be condensed with acetone by merely heating the two chemicals together at 165-175° in an autoclave.

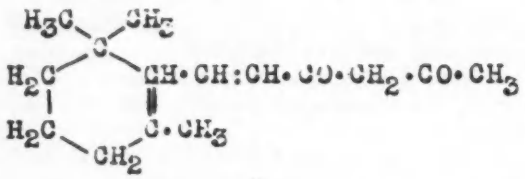
In a prior patent Haarmann and Reimer[30] had described the preparation of cyclocitralidene-acetoacetic ester and in 1901 patented[31] the preparation of beta-ionone by the decomposition of cyclocitralidene-acetoacetic acid (XLV). For example, 100 parts of beta-cyclocitralidene-acetoacetic acid were heated to about 220° so that a slow, constant evolution of carbon dioxide took place. It was advisable to do this in an atmosphere of carbon dioxide. When evolu-



(beta-cyclocitralidene-acetoacetic acid)
(XLV)

tion of gas had ceased, the crude beta-ionone was steam-distilled and subsequently purified.

The same year, Haarman and Reimer[32] patented the preparation of acetylionone by condensing citral with acetylacetone in the usual way and then treating the acetylpseudoionone with 80 per cent sulphuric acid at −10°. The fraction of the oil distilling between 170-177°/25 mm., was stated to have a pleasant odor. It had the constants: sp. gr. 18° about 1.03, n about 1.521. If acetylionone (XLVI) was heated in the presence of alkali, beta-ionone and acetic acid were formed, and this reaction was patented[33] in 1902.



(acetylionone) (XLVI)

Since it had been discovered that by means of a suitable agent for ring closure of pseudoionone to form essentially either alpha- or beta-ionone, Haarmann and Reimer extended their early patent[7] to include the use of concentrated acids such as sulphuric, phosphoric and formic. In this manner, the direct synthesis of the alpha- or beta-forms of ionone and its homologues was patented[34], sulphuric acid yielding mainly the beta- variety and phosphoric or formic acid producing the alpha-form. The two new homologues, alpha- and beta-dimethylionones are mentioned as having been prepared. The former distils at 150-155°/20 mm., and the latter at 155-160°/20 mm.

In a patent[35] of 1903, it was claimed that not only could beta-ionone be formed by the action of concentrated sulphuric acid (70-100 per cent) on a solution of citral in acetone at about 0°, but that alpha-ionone occurring in a mixture could be converted to the beta-form when subjected to similar treatment.

USE OF SODAMIDE

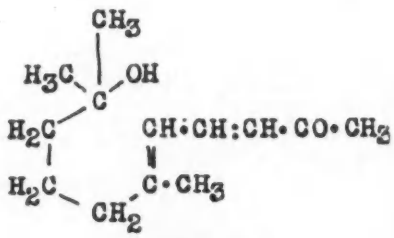
In 1903 the firm of Friedrich Bayer & Co.[36] in Elberfeld was granted a patent on the preparation of pseudoionone using sodamide to condense citral and acetone. The patent claimed the advantages of decreasing the reaction time, increasing the yield by decreasing the extent of resinification and of simplicity by maintaining room temperatures. For example, to a mixture of 200 parts of citral and 200 parts of acetone, diluted with some suitable solvent such as benzene, ether, etc., was added in small portions, 3 parts of finely divided sodamide. Cold water was used to maintain the exothermic reaction at prevailing room temperatures. After the complete addition of the sodamide, the reaction mixture was permitted to stand for 2-3 hours with frequent agitation. Water was finally added and the sodamide neutralized with diluted acid. The crude product was then dried and distilled. The fraction boiling between 140-160°/15 mm. was separated and eventually freed from traces of unreacted citral by means of steam-distillation. In 1904 this patent was taken over by Haarman and Reimer.

In 1902 Kayser[37] patented the preparation of pseudoionone by condensing citral and acetone in the presence of the alkali peroxides or the alkaline earth oxides or peroxides. The basis of this patent was the prevention of resinification of the citral or pseudoionone by eliminating the presence of water. The condensations were effected at low temperatures, employing 1 part of citral to 2 parts of acetone and from 1-10 per cent oxide, based on citral. This patent was acquired in 1902 by Haarmann and Reimer. The latter[38] extended the patent to include the use of such agents as lanthanum oxide, lead oxide or their basic salts.

Haarmann and Reimer had already patented the preparation of the alpha- and beta-forms of ionone homologues by using the appropriate concentrated mineral acids. Now in 1902 they[39] described the patented process for the manufacture of alpha-ionone. To 1 part of pseudoionone was added 4 to 5 parts of concentrated (sp.gr. 1.70-1.75) phosphoric acid, maintaining a reaction temperature of about 30°. During the same year another patent[40] was taken out, stating that ionones could also be prepared by treating the pseudoionones with dilute acids such as nitric and chromic. A little later a patent[41] was issued describing the manufacture of alpha-ionone by the use of concentrated formic acid.

HYDRATE OF PSEUDOIONONE

It is interesting to note that a hydrate of pseudoionone was prepared. Its preparation was patented by Chuit, Naef & Co.[42] in 1902. Good yields of pseudoionone hydrate (XIX) were claimed,



(pseudoionone hydrate)
(XIX)

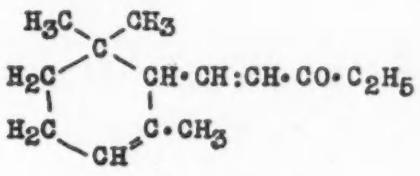
if during constant agitation, 288 parts of 68 per cent sulphuric acid were added slowly to 192 parts of pseudoionone, maintaining a temperature below 0°. The product so formed did not steam-distil and was claimed to be practically odorless. It possessed the following properties: b.p. 176-178°/9 mm., sp.gr. 15° 0.960, semicarbazone m.p. 144°.

The logical sequel[43] to the above mentioned patent, appeared in 1904, describing the preparation of the homologues of pseudoionone hydrate. To methylpseudoionone hydrate whose semicarbazone was an oil, were escribed the constants: b.p. 186-192°/12.5 mm., sp.gr. 20° 0.950. Finally, a patent addition[44] claimed the preparation of ionone and its homologues from pseudoionone hydrate and its homologues.

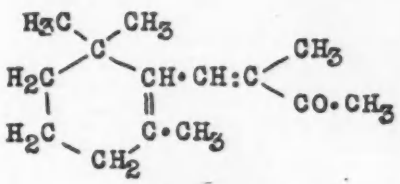
It had been demonstrated[15] that ionone could be separated into alpha- and beta-ionones. The separation depended upon the difference in ease of formation and dis-

sociation of the bisulphite addition-products. It was found that ionone homologues could be treated and separated in an analogous manner. However, in the case of the methylionones, for example, each alpha- and beta-form could be further resolved, for the aldehyde group of the citral reacted both with the methyl or methylene group of the methyl ethyl ketone. When the condensation took place with the methyl group the resultant product was called alpha- or beta-methylionone a (XLVII) and (XLIX), while the product formed by interaction with the methylene group was called alpha- or beta-methylionone b (XLVIII) and (L).

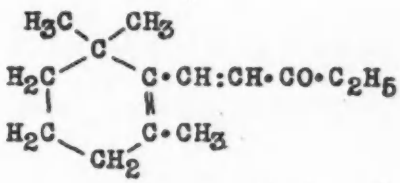
liberated from solution by addition of alkali. The following constants are reported: alpha-methylionone a, b.p. 137-142°/15 mm., sp.gr. 20° 0.927, n 20°/D 1.5009, semicarbazone m.p. 144°, alpha-methylionone b, b.p. 135-140°/15 mm., sp.gr. 20° 0.931, n 20°/D 1.5003, semicarbazone m. p. 202°. In the same way, beta-methylionone was resolved into beta-methylionone a and beta-methylionone b, the latter being the more difficultly soluble in bisulphite solution. The following constants are reported: beta-methylionone a, b.p. 145-151°/15 mm., sp.gr. 20° 0.935, n 20°/D 1.5097, semicarbazone m.p. 138-139°, beta-methylionone b, b.p. 135-140°/15 mm., sp.gr. 20° 0.936, n



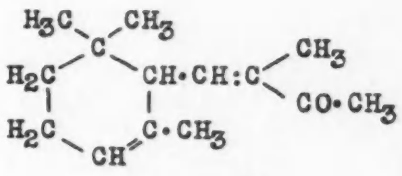
(alpha-methylionone a)
(XLVII)



(beta-methylionone b)
(L)



(beta-methylionone a)
(XLIX)



(alpha-methylionone b)
(XLVIII)

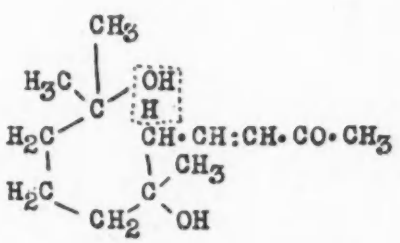
FOUR ISOMERIC METHYL IONONES

A patent issued in 1904 to Haarmann and Reimer[45] first acquainted the trade with the means of separation of these four isomers. The technical importance of these isomers lay in the fact that the odor value of each differed, and more precisely modified effects could be obtained by their application in perfumes. If, for instance, 100 parts of alpha-methylionone prepared by treating pseudoionone with concentrated phosphoric acid were refluxed with 400 parts of 25 per cent, slightly acid, aqueous solution of sodium bisulphite, alpha-methylionone a was for the most part dissolved. The alpha-methylionone b was mechanically removed and the alpha-a-compound

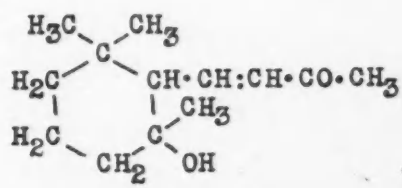
20°/D 1.5073, semicarbazone m.p. 175-176°.

A mixture of methylpseudoionones a and b also showed a difference in behavior toward sodium bisulphite solution and this difference could be employed as a means of separation, the alpha-form displaying greater reactivity toward bisulphite. Methylpseudoionone a or b could then be converted to the alpha- or beta-methylionone by using the appropriate acid catalyst.

The bisulphite method for the differentiation of the various isomers of ionone or its homologues is not suitable for a clear cut separation. The products offered to the trade are therefore not absolutely pure.

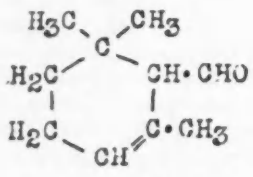


(hydrated pseudoionone postulated by Tiemann in the formation of ionone)

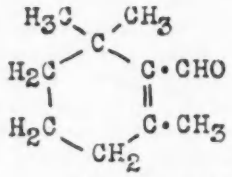


(cyclic intermediate postulated by Tiemann in the formation of ionone)
(LI)

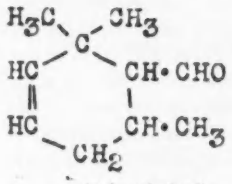
In 1904 a patent was issued to Paul Alexander[46] describing the preparation of ionones by heating pseudoionones to 170-200° in the presence of aqueous alcoholic



(alpha-cyclo-citral)
(LII)



(beta-cyclo-citral)
(LIII)

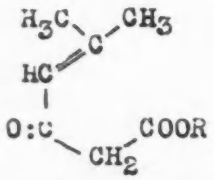


(△⁴-cyclocitral)
(LIV)

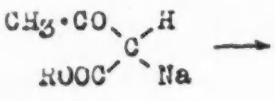
neutral salt solutions, such as calcium chloride, magnesium sulphate, sodium acetate, etc.

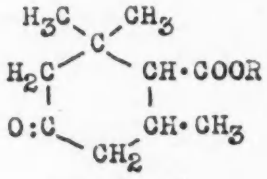
In 1906 Coulin[47] described in a patent how pseudoionone hydrate and an isomer $C_{13}H_{22}O$ might be obtained. He observed that when pseudoionone was treated with concentrated acids at room temperatures, not only were ionone, terpenes and resins formed, but pseudoionone hydrate and an isomeric material, which he suggested was the cyclic intermediate (LI) postulated by Tiemann[48] in the formation of ionone.

(To be continued next month)

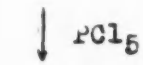


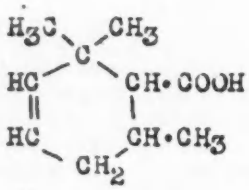
(isopropylidene-acetoacetic ester) (LV)



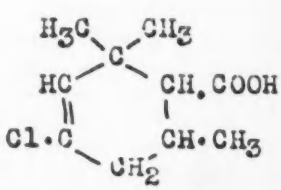


(3, 3, 5-trimethyl-4-carbalkoxy-cyclohexanone-1)
(LVI)

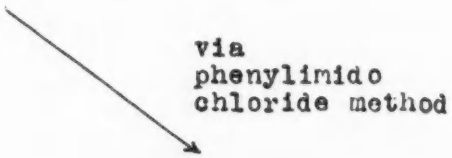


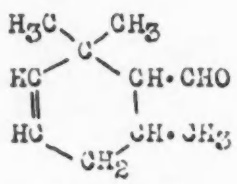


(△⁴-cyclogeranic acid) (LVIII)



(4-chlor-△⁴-cyclogeranic acid)
(LVII)





(△⁴-cyclocitral)
(LIX)